DRAFT
SUBSEQUENT ENVIRONMENTAL IMPACT REORT

FOR THE

CHINO BASIN WATERMASTER
OPTIMUM BASIN MANAGEMENT PROGRAM UPDATE

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ABBREVIATIONS AND ACRONYMS

AFY or afy	acre-feet per year
AMP	Adaptive Monitoring Program
ASR	Aquifer Storage and Recovery
Basin Plan	Santa Ana River Basin
CASGEM	California Statewater Groundwater Elevation Monitoring Program
CCWF	Chino Creek Well Field
CCWRF	Carbon Canyon Water Recycling Facility
CDA	Chino Basin Desalter Authority
CEQA	California Environmental Quality Act
CIM	Chino Institute for Men
Court	California State Superior Court for San Bernardino County
DDW	Division of Drinking Water
DFW	Department of Fish and Wildlife
DTSC	Department of Toxic Substances Control
DWR	Department of Water Resources
DYYP	Dry-Year Yield Program
EDMs	electronic distance measurements
FMSB	First Managed Storage Band
FWC	Fontana Water Company
GE	General Electric
GLMC	Ground-Level Monitoring Committee
GMZ	Groundwater Management Zone
HP	horsepower
IEUA	Inland Empire Utilities Agency
IMP	Interim Monitoring Program
IP	Implementation Plan
IX	RO/ion exchange
JCSD	Jurupa Community Services District
Judgment	Chino Basin Municipal Water District vs. City of Chino et al.
MAR	Managed Aquifer Recharge
MCLs	maximum contaminant levels
MGD	million gallons per day
MPI	Material Physical Injury
MS4	Municipal Separate Storm Sewer System
MVWD	Monte Vista Water District
MZ-1	Management Zone 1
NLs	notification levels
OBMP	Optimum Basin Management Program
PBHSP	Prado Basin Habitat Sustainability Program
PEs	Program Elements
PFAS	per-and polyfluoroalkyl substances
PFOA	perfluorooctnoic acid
PFOS	perfluorooctane sulfonate

POTW	Publicly-owned Treatment Works
Regional Board	Santa Ana Regional Water Quality Control Board
RIPComm	Recharge Investigations and Projects Committee
RMPU	Recharge Master Plan Update
RO	reverse osmosis
RODs	Records of Decisions
RP	Regional Plant
SEIR	Supplemental Environmental Impact Report
SFI	Storage Framework Investigation
SGMA	Sustainable Groundwater Management Act
SMP	Storage Management Plan
SNMP	Salt-and-Nutrient Management Plan
SSC	Safe Storage Capacity
SWRCB	State Water Resources Control Board
TDS	total dissolved solids
TIN	total inorganic nitrogen
TOC	total organic carbon
USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey
UV	ultraviolet
VOC	volatile organic compound
WEI	Wildermuth Environmental, Inc.
WFA	Water Facilities Authority

CHAPTER 1 – EXECUTIVE SUMMARY

This Executive Summary for the Chino Basin Watermaster Optimum Basin Management Program Update (OBMPU) Draft Subsequent Environmental Impact Report (DSEIR) summarizes the potential environmental effects that are forecast to occur from implementation of the proposed Project. It also contains a summary of the Project background, Project objectives, and Project description. A table summarizing potentially significant environmental impacts, mitigation measures, and mitigation responsibility is included at the end of this Executive Summary (Table 1.5-1). Chapter 2, the Introduction to this DSEIR, also provides information that augments this Executive Summary.

1.1 PROJECT BACKGROUND

The Chino Basin Watermaster (CBWM or Watermaster) is proposing to update the Optimum Basin Management Program (OBMP), which provides a regional water resources and groundwater management program for the Chino Basin. The OBMPU's scope is, of necessity, expansive, as it covers the nine (9) Program Elements (PEs) that make up the original OBMP, and which were analyzed in a 2000 Program Environmental Impact Report (2000 PEIR). The OBMPU is intended to address possible Chino Basin water resource program activities and projects at a programmatic level over the next 30 years, with some site-specific detail where near-term future locations of facilities are known. The CBWM and stakeholders have worked to define the scope, purpose and goals of the OBMPU over the past two years. The stakeholders concluded that the goals of the 2020 OBMP Update (OBMPU) are identical to the 2000 OBMP goals.

The implementation of the facilities proposed as part of the OBMPU consists of construction and operation of the various facilities that will be summarized below. These potential facilities are separated into four project categories: (1) Project Category 1: Well Development and Monitoring Devices; (2) Project Category 2: Conveyance Facilities and Ancillary Facilities; (3) Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands; and, (4) Project Category 4: Desalters and Water Treatment Facilities.

The Chino Basin Watermaster functions as a unique entity that has been created by the court to administer the Judgement—which addressed the allocation of water rights in the Chino Basin. The Watermaster is composed of a Board that consists of member agencies from three groups: an Appropriative Pool, Non-Appropriative Pool, and Agricultural Pool, and four other public agencies (see below), effectively the water producers in the Chino Basin. Please refer to Appendix 1 for a list of all Appropriative Pool, Non-Appropriative Pool, and Agricultural Pool participants. These member agencies are henceforth referred to as either "stakeholders" or "the parties."

Because the CBWM is not considered a public agency, the Inland Empire Utilities Agency (IEUA) will serve as the Lead Agency for the implementation of the proposed Optimum Basin Management Program Update environmental documentation under the California Environmental Quality Act (CEQA). Actual implementation of the OBMPU activities—outlined in Chapter 3: Project Description—may be carried out by the CBWM or any of its member agencies/stakeholders in the Chino Basin through the planning period, 2020 through 2050.

Based on the information in the OBMPU Initial Study—provided as part of the Notice of Preparation (NOP)—IEUA and Watermaster concluded that an Environmental Impact Report

(EIR) should be prepared to address the potential impacts from proposed Project focused on the following issues: Air Quality, Biological Resources, Cultural Resources, Energy, Greenhouse Gas, Hydrology and Water Quality, Tribal Cultural Resources, and a portion of Utilities and Service Systems. The decision to prepare an EIR was based on the finding that the proposed Project may have one or more significant effects on the existing Project environment and surrounding environment as is documented in the NOP, provided as Subchapter 8.1 of this document.

The focus of the analysis provided herein, in accordance with Section 15146 of the State CEQA Guidelines, addresses the forecast effects of the proposed OBMPU as presented in Chapter 3, Project Description. However, it is the combination of authorizations and entitlements requested for this Project that must be recommended for approval by IEUA to allow the OBMPU to be implemented by Watermaster and stakeholders.

1.2 INTENDED USE OF THIS ENVIRONMENTAL IMPACT REPORT

This Program DSEIR has been prepared in accordance with the CEQA Statutes and Guidelines, 2018, pursuant to Section 21151 of CEQA. IEUA is the Lead Agency for the Project and has supervised the preparation of this DSEIR. This DSEIR is an information document which will inform public agency decision makers and the general public of the potential environmental effects, including any significant impacts that may be caused by implementing the proposed Project. Possible ways to minimize potential significant effects of the proposed Project and reasonable alternatives to the Project are also identified in this Program DSEIR.

As a Subsequent EIR, this document addresses the continued evolution of the OBMP over the past 20 years. The original OBMP Program Environmental Impact Report (PEIR) was certified in 2000 and the Peace II SEIR was certified in 2010. This OBMPU SEIR tiers off of these two documents and extends the analysis for each environmental issue to the address the current environmental setting (2020). These documents and their findings are referenced in the OBMPU DSEIR where appropriate. Copies of these documents can be accessed at the IEUA website www.ieua.org/obmpu-ceqa.

This document assesses the impacts, including unavoidable adverse impacts and cumulative impacts, related to the construction and operation of the proposed Project. This Program DSEIR is also intended to support the permitting process of all agencies from which discretionary approvals must be obtained for particular elements of this Project. Other California agency approvals (if required) for which this environmental document may be utilized include:

- Future site-specific projects may be enacted by OBMPU Stakeholders. This DSEIR and subsequent environmental documents may be reviewed by each City or Stakeholder as part of the review process for future OBMPU related projects.

- California Department of Public Health (CDPH) is responsible for issuing water supply permits administered under the Safe Drinking Water Program and funds various loan and grant programs for drinking water related infrastructure projects. As such, CDPH would be considered a "responsible agency" if IEUA or other stakeholders request any permits and/or funding from CDPH for the OBMPU.

- Notice of Intent (NOI) to the State Water Resources Control Board (SWRCB) for a NPDES general construction stormwater discharge permit. This permit is granted by submittal of an NOI to the SWRCB, but is enforced through a Storm Water Pollution Prevention Plan (SWPPP) that identifies construction best management practices (BMPs) for the site. In the project area, the Santa Ana Regional Board enforces the BMP requirements contained in the NPDES permit by ensuring construction activities adequately implement a SWPPP. Implementation of the SWPPP is carried out by the construction contractor under contract to IEUA or a stakeholder agency, with the Regional Board providing enforcement oversight.

- The project includes the potential discharge of fill into or alterations of “waters of the United States,” “waters of the State,” and stream beds of the State of California. Regulatory permits to allow fill and/or alteration activities due to project activities such as pipeline installation are likely be required from the Army Corps of Engineers (ACOE), the Regional Board, and California Department of Fish and Wildlife (CDFW) over the life of the OBMPU. A Section 404 permit for the discharge of fill material into “waters of the United States” may be required from the ACOE; a Section 401 Water Quality Certification may be required from the Regional Board; a Report of Waste Discharge may be required from the Regional Board; and a 1600 Streambed Alteration Agreement may be required from the CDFW.

- The U.S. Fish and Wildlife Service (USFWS) and/or CDFW may need to be consulted regarding threatened and endangered species documented to occur within an area of potential impact for future individual projects. This could include consultations under the Fish and Wildlife Coordination Act.

- Land use permits may be required from local jurisdictions, such as individual cities and the two Counties (Riverside and San Bernardino).

- Air quality permits may be required from the South Coast Air Quality Management District (SCAQMD).

- Encroachment permits may be required from local jurisdictions, such as individual cities, California Department of Transportation (Caltrans), the two counties (Riverside and San Bernardino), Flood Control agencies, and private parties such as Southern California Edison, The Gas Company, or others such as BNSF Railway Company.

- Watermaster has a separate approval process for determining material physical injury to the stakeholders within the Chino Basin.

- State Water Resources Control Board will be a responsible agency if permits or funding are requested from the State Revolving Fund Program or Division of Drinking Water.

This is considered to be a partial list of other permitting agencies for future OBMPU future individual projects.

1.3 PROJECT OBJECTIVES

The *2020 Optimum Basin Management Program Update Report* (2020 OBMP Update Report), released in July 2019 by CBWM, documents the stakeholder process that was used to update the OBMP and it describes the 2020 OBMP Management Plan. The management plan forms the basis for the 2020 OBMP Implementation Plan Update. Through this process, the stakeholders concluded that the goals of the 2020 OBMP Update should be identical to the 2000 OBMP goals.

Accordingly, the 2020 OBMPU's goals remain the same as the 2000 OBMP's goals:

> ***Goal No. 1 - Enhance Basin Water Supplies***. The intent of this goal is to increase the water supplies available for Chino Basin Parties and improve water supply reliability. This goal applies to Chino Basin groundwater and all other sources of water available for beneficial use.
> ***Goal No.2 - Protect and Enhance Water Quality***. The intent of this goal is to ensure the protection of the long-term beneficial uses of Chino Basin groundwater.
>
> ***Goal No.3 - Enhance Management of the Basin***. The intent of this goal is to encourage sustainable management of the Chino Basin to avoid Material Physical Injury, promote local control, and improve water-supply reliability for the benefit of all Chino Basin Parties.
>
> ***Goal No. 4 - Equitably Finance the OBMP***. The intent of this goal is to identify and use efficient and equitable methods to fund OBMP implementation.

1.4 PROJECT APPROVALS

This DSEIR will be used as the information source and CEQA compliance document for the following discretionary actions or recommended approvals by the CEQA lead agency, IEUA. CEQA requires that the IEUA, the CEQA Lead Agency, consider the environmental information in the project record, including this DSEIR, prior to making a decision regarding whether or not to recommend approval to CBWM and implement the proposed project. The decision that will be considered by IEUA is whether to approve the Chino Basin Watermaster OBMPU defined in Chapter 3 of this document. The OBMPU has defined nine program elements, which include facilities that have been broken into four project categories as defined above and within the Project Description. Alternatively, IEUA can recommend denial of the project as proposed. This Program DSEIR evaluates the environmental effects as outlined above.

IEUA will serve as the CEQA Lead Agency on behalf of the Watermaster pursuant to the State CEQA Guidelines Section 15015(b)(1). In all future circumstances, IEUA will remain the Lead Agency for the OBMPU CEQA document and the Watermaster will maintain annual records for cumulative projects implemented under the OBMPU on an annual basis. A CEQA Responsible Agency—those defined in Chapter 3, the Project Description of this DSEIR—shall coordinate with these agencies when it assumes CEQA Lead Agency status for a future specific project.

This DSEIR has been prepared by Tom Dodson & Associates (TDA) under contract to IEUA and Watermaster. TDA was retained to assist IEUA to perform the independent review of the project required by CEQA before the DSEIR is released. IEUA has reviewed the content of the DSEIR and concurs with the conclusions and findings contained herein.

1.5 IMPACTS

IEUA and Watermaster concluded that an EIR should be prepared to address any potential significant impacts that may result from implementation of the proposed Project. A DSEIR has been prepared for the proposed Project.

Based on data and analysis provided in this DSEIR, it is concluded the proposed Project could result in significant adverse environmental impacts to the following environmental issues: ***Biological Resources, Greenhouse Gas, and Utilities and Service Systems***. All other potential impacts were determined to be less than significant without mitigation or can be reduced to a less than significant level with implementation of the mitigation measures identified in the attached Initial Study (IS) / Mitigated Negative Declaration (MND) provided in Subchapter 8.1 to this DSEIR. Note that the cumulative significant impacts are identified in this document based on findings that the Project's contributions to such impacts are considered to be cumulatively considerable which is the threshold identified in Section 15130 of the State CEQA Guidelines. Table 1.5-1 summarizes all of the environmental impacts and proposed mitigation and monitoring measures identified in this DSEIR and will be provided to the decision-makers prior to finalizing the DSEIR.

The following issues evaluated in the Focused DSEIR have been determined to experience less than significant impacts—either with or without mitigation—based on the facts, analysis and findings in the Initial Study provided in Subchapter 8.2 to this Focused DSEIR.

<u>Aesthetics</u>: As described in Section I of the IS, all potential aesthetic impacts associated with the OBMPU can be mitigated to a less than significant impact level. Mitigation measures would: minimize impacts to scenic vistas through enforcing future projects to meet local design standards; minimize visual impacts to the pastoral setting at the Mills Wetland site; minimize impacts to scenic resources through avoidance of such resources, or through assessment in subsequent CEQA documentation; minimize impacts to scenic resources such as threes through enforcement of compliance with local jurisdiction tree ordinance(s); minimize conflicts with regulations governing scenic quality through enforcing compliance with applicable zoning code and design requirements established by local jurisdictions; and, minimize light and glare impacts by enforcing local jurisdiction light and glare minimization standards. As a result, there will not be any unavoidable Project specific or cumulative adverse impacts to aesthetics from implementing the Project as proposed.

<u>Agriculture & Forestry Resources</u>: Due to the substantial agricultural resources located within Chino Basin, installation of future OBMPU related facilities were determined to have a potentially significant impact to such resources; however, several mitigation measures were identified to minimize agricultural and forestry resource impacts including those that would: relocate or avoid impacts to important agricultural land or offset the loss by acquiring agricultural land conservation credits; and, relocate or avoid impacts to forest land or offset the loss by purchasing compensatory mitigation in the form of comparable forest land permanently conserved in either a local or State-approved important forest land mitigation bank. As described in Section II of the IS, no unavoidable significant impact to agricultural resources will result from implementing the proposed Project.

<u>Air Quality</u>: As described in Subchapter 4.2, with the implementation of mitigation, construction of the proposed Project would reduce impacts for all criteria pollutants below South Coast Air Quality Management District (SCAQMD) significance thresholds. Additionally, the regional operational emissions that would result from OBMPU implementation would be less than significant without the need for mitigation. Furthermore, the OBMPU would be consistent with the SCAQMD Consistency Criterion No. 1 and No. 2, and as such would not result in or cause National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) violations. After implementation of mitigation measures, construction-source emissions would not exceed the applicable SCAQMD Localized Significance Thresholds and would be less

than significant. Mitigation measures would: minimize the horsepower of construction equipment, ensure that off-road diesel construction equipment conforms to Tier 4 standards, and ensure that all construction equipment is tuned and maintained in accordance with manufacturer specifications; and, ensure that all graded areas within future OBMPU Project sites are watered at 2.1 hour watering intervals or otherwise ensure a soil moisture of 12%. As a result, there will not be any unavoidable Project specific or cumulative adverse impacts to air quality from implementing the Project as proposed.

Cultural Resources: As described in Subchapter 4.4, the Chino Basin is a large expanse of area that may contain historical, archaeological, or paleontological resources. As such, future OBMPU projects may be developed within sites that contain such resources. Since the proposed project is at the programmatic level, specific locations for most of the proposed OBMPU projects have not yet been determined. As such, mitigation has been identified to minimize impacts to cultural resources, including those that would: exclude highly disturbed sites from requiring further cultural resource evaluation except to adhere to procedures pertaining to the treatment of accidental discoveries, unless the Implementing Agency is seeking state funding for the project; ensure that future OBMPU Projects that are located within undisturbed areas, within a site that will require substantial earthmoving activities and/or excavation, and/or the Implementing Agency is seeking State funding, will require a follow on Phase I Cultural Resources Investigation and enforces several phases or steps beyond the completion of a Phase I Cultural Resources Investigation that would cover the identification, evaluation, mitigation, and monitoring associated with a given project where resources may be located; ensure that a complete report on the methods, results, and final conclusions of the research procedures is prepared and submitted to SCCIC, EIC, NHMLAC, and/or SBCM for projects containing cultural resources; and, set a precedent for future OBMPU Projects that would streamline the design and completion of future Phase I Cultural Resources Investigations. As described in Subchapter 4.4, no unavoidable significant impact to cultural resources will result from implementing the proposed Project.

Energy: As discussed in Subchapter 3.5, OBMPU construction and operation would not result in in inefficient, wasteful or unnecessary consumption of energy and would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Due to the scope of the OBMPU, there is a potential for certain types of OBMPU Facilities to require a substantial amount of operational energy, as such, mitigation that would accomplish the following is required to minimize impacts to a level of less than significant: consider use of alternative energy sources for future OBMPU Projects; and, for those Facilities that are anticipated to utilize a substantial amount of energy for operations, subsequent CEQA documentation to address operational energy demands. With implementation of the above mitigation measures, and compliance with current Federal and State regulations pertaining to energy conservation, the proposed OBMPU is anticipated to have a less than significant impact on energy demand and resources.

Geology and Soils: The Chino Basin contains substantial geological and soils constraints. Due to these substantial constraints and the installation of future OBMPU related facilities in locations where such constraints may occur, a potential for significant geology and soils resources impacts from implementation of the OBMPU were identified in Section VI of the IS. However, several mitigation measures were identified to minimize geology and soils impacts including those that would: ensure new facilities are located outside of delineated fault zones through relocation, implementation of seismic design measures, or subsequent CEQA documentation; reduce potential impacts from liquefaction and landslide hazards through a design level geotechnical investigation with implementation of specific design recommendations; ensure that the proposed facilities associated with the OBMPU that are less than one acre in size would not exacerbate conditions related to erosion associated with runoff from construction sites through the implementation of BMPs; minimize impacts to paleontological resources through requiring site-specific studies, where necessary. As described in Section VI of the IS, no unavoidable significant impact to geology and soils will result from implementing the proposed Project.

Hazards and Hazardous Materials: The Chino Basin contains substantial hazards and hazardous materials issue constraints. Due to these substantial constraints and the installation of future water infrastructure facilities in locations where such constraints may exist, a potential for significant hazards and hazardous materials issue impacts from implementation of the OBMPU were identified in Section VIII of the IS. However, several mitigation measures were identified to minimize hazards and hazardous materials impacts including those that would: ensure that applicable OBMPU facilities Business Plan's incorporate best management practices designed to minimize the potential for accidental release of such chemicals; ensure that applicable OBMPU facilities Business Plan's identify the equipment and response capabilities required to provide immediate containment, control and collection of any released material; ensure sensitive receptors will not be exposed to significant health threat by modeling the pathways of release and implementing specific measures that would minimize potential exposure to acutely hazardous materials; ensure hazardous materials are disposed of and delivered to licensed facilities; ensure the establishment of and adherence to specific thresholds of acceptable clean-up of hazardous materials; ensure the preparation of and adherence to vector management plans; ensure remediation of an accidental spill or discharge of hazardous material in compliance with state and local regulations; ensure that sites for future OBMPU facilities obtain a Phase I Environmental Site Assessment and either avoid or remediate a site that is contaminated; ensure that any unknown contamination is remediated and handled according to the local CUPA; ensure compliance with the appropriate airport land use plan and coordination with the appropriate airport management agencies to ensure safety for people residing or working within the project area; ensure that construction traffic is managed safely; and, ensure that fire hazard reduction measures are enforced. Therefore, though there will be some adverse impacts as a result of implementing the Project, specific mitigation measures have been identified to reduce potential Project specific and cumulative (direct and indirect) effects to a less than significant impact level for hazards and hazardous material issues. Thus, the Project is not forecast to cause any unavoidable significant adverse hazards or hazardous material impacts.

Hydrology and Water Quality: As described in Subchapter 4.7, the overall hydrology (watershed, drainage and flood hazards) and water quality impacts that would result from implementation of the OBMPU could be significant without the implementation of mitigation measures. As such, several mitigation measures were identified to minimize impacts related to hydrology and water quality, such as those that would: ensure that Watermaster gathers the appropriate data to (1) determine whether future OBMPU projects would result in loss of pumping sustainability, result in potential reduction in net recharge and impacts to Safe Yield, result in new subsidence, result in potential adverse impacts to Hydraulic Control, or result in potential degradation of water quality, and (2) respond with appropriate mitigation to minimize the potential adverse hydrological impacts that may occur from a Project or, where mitigation is not feasible, reject the Project; address the plan of response by Watermaster should the Basin conditions to vary from the projections that have been modeled as part of the OBMPU (and all supporting documentation); would require implementation of BMPs for projects of less than one acre in size that would be comparable to the requirements of the Construction General Permit and Stormwater Pollution Prevention Plan, which are required for larger projects; ensure that drainage is managed through either runoff collection or development of a drainage plan for a given OBMPU Project; require OBMPU projects at existing well sites to remain within disturbed areas wherever feasible to minimize the potential for further ground disturbance at these sites; require all disturbed areas that are not covered in hardscape or vegetation would be revegetated or landscaped at future OBMPU facility sites; ensure that a management plan for each storage or recharge basin is established to ensure the safety of surrounding property and people from undue risks associated with water-related hazards such as flooding; ensure that significant polluted runoff does not occur from contaminated discharge that may result from refurbishing or capping a well; and, ensure that brine generated by water treatment systems would be disposed of in a manner that would minimize the potential for release of polluted runoff. Therefore, though there will be some adverse impacts as a result of implementing the Project, specific mitigation measures have been identified to reduce potential Project specific and cumulative (direct and indirect) effects to a less than significant impact level for hydrology and water quality issues. Thus, the Project is not forecast to cause any unavoidable significant adverse hydrology and water quality impacts.

<u>Land Use and Planning</u>: As described in Section XI of the IS, impacts related to land use and planning are minimal; however, mitigation is provided to address the potential for conflicts with land use from OBMPU related facilities. This mitigation would ensure that the facilities associated with the OBMPU are developed in appropriate areas, and conform with the surrounding land uses or are developed to minimize conflicts with adjacent land uses. With implementation of this mitigation measure, the project-related land use and planning impacts can be reduced below significance thresholds, and as such, the proposed Project will not cause unavoidable significant land use and planning impacts.

<u>Mineral Resources</u>: As described in Section XII of the IS, limited mineral resource occur in the northern portion of the Chino Basin. As such, there is a nominal potential for future OBMPU facilities to be installed within a mineral resource zones. As such, mitigation has been identified to minimize mineral resource impacts that would ensure that the proposed facilities associated with the OBMPU would not result in significant loss of mineral resources through either relocation, or compensation for development proposed to be located within an area containing significant mineral resources. With implementation of this mitigation measure, the project-related mineral resource impacts can be reduced below significance thresholds, and as such, the proposed Project will not cause unavoidable significant mineral resource impacts.

<u>Noise</u>: The Chino Basin contains extensive areas with noise sensitive land uses. Due to these substantial noise constraints and the installation of future noise-producing OBMPU facilities in locations where such noise sensitive uses may exist, a potential exists for significant noise impacts from implementation of the OBMPU. However, several mitigation measures were identified to minimize noise impacts including those that would: reduce the construction-related noise levels at nearby receptors to the maximum extent feasible; ensure that operational noise meets the applicable City or County noise level requirement, thereby minimizing operational noise impacts; ensure that construction activities outside of standard working hours secure a noise waiver, thereby minimizing conflicts with the applicable noise standards; enforce noise minimizing techniques that will ensure that the proposed well developments will not result in excessive operation or construction related noise; discourage the use of construction equipment that generates high levels of vibration near sensitive uses; ensure the safety of existing historic buildings by requiring a certified structural engineer to analyze and provide evidence that no structural damage would result at these buildings due to the project’s construction activities; and, ensure that projects located in close proximity to the airport would minimize exposure of persons working at or visiting a site to excessive noise levels. With implementation of these mitigation measures, the project-related noise impacts can be reduced to a less than significant impact level.

Population and Housing: As described in Section XIV of the IS, implementation of the OBMPU would not significantly induce growth within the Chino Basin; however, mitigation is provided to address the potential for OBMPU related facilities to displace housing and/or persons. This mitigation would ensure that the facilities associated with the OBMPU that are located on parcels containing housing would be minimized through the provision of short- and long-term housing of comparable quality, thereby minimizing impacts below significance thresholds. With implementation of this mitigation measure, the project-related population and housing impacts can be reduced below significance thresholds, and as such, the proposed Project will not cause unavoidable significant land use and planning impacts.

Public Services: As described in Section XV of the IS, implementation of the OBMPU would not significantly impact fire protection, police protection schools, recreation/parks or other public facilities. However, several mitigation measures were identified to minimize impacts to police protection and recreation/parks including those that would: minimize the potential for trespass that could exacerbate demand for police protection services; and, minimize the potential for loss of park or recreational facilities as a result of OBMPU projects through relocation or provision of supplemental parkland or recreation facilities. With implementation of these mitigation measure, the project-related police protection and park/recreation impacts can be reduced to a less than significant impact level.

Recreation: As described in Section XVI of the IS, implementation of the OBMPU would not significantly impact recreation. However, mitigation identified under Public Services that would minimize the potential for loss of park or recreational facilities as a result of OBMPU projects would minimize impacts under this issue as well. Furthermore, mitigation is provided to ensure that, should construction of recreation or park facilities be required as a part of the OBMPU, a subsequent CEQA determination will be prepared to ensure that impacts are appropriately assessed and mitigated. With implementation of this mitigation measure, the project-related recreation impacts can be reduced below significance thresholds, and as such, the proposed Project will not cause unavoidable significant recreation impacts.

Transportation: Since transportation system facilities occur throughout much of the Chino Basin and the installation of future water infrastructure facilities can directly impact roadways or traffic on such roadways, a potential for significant transportation/traffic impacts from implementation of the OBMPU was identified in Section XVII of the IS. Mitigation was identified to minimize impacts to transportation that would reduce the project's potential construction traffic impacts by requiring all construction activities to be conducted in accordance with an approved construction traffic control plan. With implementation of this mitigation measure, the project-related transportation impacts can be reduced below significance thresholds, and as such, the proposed Project will not cause unavoidable significant recreation impacts.

Tribal Cultural Resources: As described in Subchapter 4.8 of this DSEIR, the San Manuel Band of Mission Indians, Gabrieleño Band of Mission Indians - Kizh Nation, and Morongo Band of Mission Indians requested continued participation with this project's CEQA process and future project implemented under the OBMPU. Concerns expressed include the following: accidental exposure of subsurface cultural resources and proper management of such resources; concerns over exposure of human remains and proper management; and presence of Native American monitors during future ground disturbing activities. Through incorporation of mitigation measures, impacts to Tribal Cultural Resources are considered less that significant. The mitigation measures provide a hierarchy from which to approach future OBMPU Projects, involving (1) notification to the three tribes at project sites that have been totally disturbed; (2) at undisturbed project sites, AB 52 consultation will be initiated and a records search shall be performed as part of a site specific Phase I evaluation, and the site shall be surveyed; and, (3) development and implementation of a Cultural Resources Monitoring and Treatment Plan which may require monitoring and treatment of any resources located within a given site. Thus, with implementation of mitigation to protect tribal cultural resources, the Project would not cause significant unavoidable adverse impacts to tribal cultural resources.

Wildfire: The location of OBMPU facilities would likely not be located in such an area but since many of the proposed OBMPU facilities sites have not yet been identified, it is possible that one or more future facilities could be required to locate within such areas. Mitigation was identified to minimize impacts to wildfire (gathered from other sections of the IS) that would: reduce the project’s potential traffic conflicts that could be exacerbating in high fire hazard zones by requiring all construction activities to be conducted in accordance with an approved construction traffic control plan; ensure adequate emergency access; and, ensure fire hazard reduction measures are incorporated into a fire management plan for a proposed OBMPU facility. Thus, with implementation of mitigation to minimize wildfire impacts, the Project would not cause significant unavoidable adverse impacts under wildfire.

The proposed Project could result in significant impacts to the following environmental issues: Biological Resources, Greenhouse Gas, and Utilities and Service Systems, based on the facts, analysis and findings in this Focused DSEIR.

Biological Resources: As described in Subchapter 4.3, development of the OBMPU, because the specific locations for future OBMPU Projects are not presently known, there is a potential that a future OBMPU facility may be developed in an area containing significant biological resources that cannot be avoided. Though substantial mitigation is provided to minimize impacts, there are certain areas within the overall project area of potential impact where the biological resource impacts from constructing new infrastructure may cause unavoidable significant adverse impacts on biological resources. Thus, the proposed Project has the potential to cause significant unavoidable adverse impacts to biological resources

Greenhouse Gas: As described in Subchapter 4.6, the proposed project will generate approximately 18,986.93 metric tons CO_2e per year. As such, the construction of the OBMPU would generate emissions beyond the SCAQMD 3,000 $MTCO_2e$/yr and 10,000 $MTCO_2e$/yr thresholds, and as such, will have a significant and unavoidable adverse impact under Greenhouse Gas. Therefore, the project's GHG emissions are considered to be an unavoidable adverse significant impact. No feasible mitigation measures have been identified that would reduce these emissions to levels that are less than significant. Thus, exceedances of applicable SCAQMD regional thresholds are considered significant and unavoidable, and the construction of the proposed project would create a significant cumulative impact to global climate change.

Utilities and Service Systems: Section XVIII of the IS concluded that implementation of the OBMPU would not significantly impact wastewater, stormwater drainage, telecommunications, or solid waste. Mitigation is required to minimize impacts related the extension of wastewater and brine conveyance associated with the proposed project through requirement of subsequent CEQA documentation for water treatment facilities. Additionally, mitigation is required to minimize impacts related to stormwater through implementation of a drainage plan to reduce downstream flows for future OBMPU projects. Mitigation is required to address potential impacts related to solid waste including those that would: ensure that construction and demolition materials that are salvageable are recycled, and thereby diverted from the local landfill, which will minimize the potential for OBMPU projects to generate waste in excess of local landfill capacities; and, ensure that soils that would generally be exported from a given construction site are salvaged where possible for recycled and ultimately reuse, thereby diverting this waste stream from the local landfill. Based on the facts and findings presented in the DSEIR analysis, the proposed Project will not cause unavoidable significant adverse impacts to wastewater, stormwater drainage, telecommunications, or solid waste.

In Subchapter 4.9, the construction of infrastructure related to energy and natural gas was analyzed and determined to be less than significant with the implementation of mitigation. This mitigation would ensure that OBMPU projects not located in an area containing electricity and natural gas infrastructure would require subsequent CEQA documentation. With implementation of this mitigation the proposed Project will not cause unavoidable significant adverse impacts to energy or natural gas.

The topic of water infrastructure was also discussed in Subchapter 4.9, and while the extension of water related infrastructure was determined to be significant, the provision of sufficient water supply within the Chino Basin was determined to be less than significant. Mitigation is required to minimize impacts related to pumping sustainability, net recharge and safe yield, hydraulic control, and overall basin management. These mitigation measures will ensure that sufficient water supplies are available to serve the Parties within the Chino Basin. The mitigation is extracted from Subchapter 4.7, Hydrology and Water Quality (discussed above) and would create a hierarchy of checks and balances as part of the sustainable management of the Basin through continuous monitoring of known issues within the Basin and a comparable mitigative response to ensure that these issues do not result in a significant impact.

However, as discussed under Subchapter 4.9 of this DSEIR, the proposed OBMPU would result in significant impacts related to the construction-related GHG emissions that would result from the extension of water-related infrastructure. As such, though mitigation measures identified under Air Quality would reduce emissions from construction equipment, and would ensure minimization of fugitive dust during construction of OBMPU related facilities, construction-related greenhouse gas emissions exceed the SCAQMD screening thresholds of 3,000 $MTCO_2e$ and 10,000 $MTCO_2e$, and therefore the proposed OBMPU would result in significant and unavoidable impacts related to construction or new or expansion or modifications to existing water facilities.

The Executive Summary of potential Project impacts is presented in Table 1.5-1.

1.6 ALTERNATIVES

The California Environmental Quality Act (CEQA) and the State CEQA Guidelines require an evaluation of alternatives to the proposed action. Section 15126 of the State CEQA Guidelines indicates that the “discussion of alternatives shall focus on alternatives capable of eliminating any significant adverse environmental effects or reducing them to a level of not significant....” The State Guidelines also state that “a range of reasonable alternatives to the project....which could feasibly attain the basic objectives of the project” and “The range of alternatives required in an EIR is governed by ‘rule of reason’ that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice.” The detailed analyses of the alternatives evaluated are provided in Chapter 5 of this Program DSEIR. This evaluation addresses those alternatives for feasibility and a range of alternatives required to permit decision-makers a reasoned choice between the alternatives. Refer to Table 1.6-1 for a tabular comparison of alternatives (found at end of chapter).

The proposed Project objectives are to enhance basin water supplies, protect and enhance water quality within the Chino Basin, enhance management of the Chino Basin, and equitably finance the OBMP. In this instance the DSEIR analysis in Chapter 4 has reached a finding that there are three issues with unavoidable significant adverse effects from implementing the Project as proposed in Chapter 3, the Project Description.

For this project, the no project and Baseline Alternative project are essentially the same alternative. This conclusion is based on the fact that if the no project alternative were adopted, the Baseline Alternative is already approved and it is assumed that IEUA, Watermaster and stakeholders would continue to manage the Chino Groundwater Basin under the adopted OBMP, which is the Baseline Alternative. The OBMPU is an integrated program/plan designed to incrementally implement the water infrastructure required to create a sustainable water supply and meet the forecast increase in water demand from growth in the Chino Basin over the next 30 years. As indicated in Chapter 3 of this environmental document, the Watermaster and the stakeholders/parties spent the past two years developing an integrated program to establish sustainability of water resources in the Chino Basin. The OBMPU consists of a complex, complicated and integrated program that incorporates a mix of projects and operations that are designed to meet the primary objectives to meet sustainable and sufficient water supply though 2050. Although minor tweaks or modifications to the OBMPU are likely to occur over the next 30 years, no major changes in the program have been identified at this stage that can be implemented without harming its ability to meet the essential program objective of increasing water supply in a sustainable manner. For example, deferring installation of water-related infrastructure in any given year would simply increase the amount of construction required in the following year. Therefore, based on the integrated nature of the OBMPU programs, reducing its scope relative to the proposed project is not considered to be a “feasible” alternative. Thus, the No Project/Baseline Alternative was selected for evaluation in an effort to reduce the proposed Project impacts to a less than significant level.

1.6.1 No Project / Baseline Alternative

One of the alternatives that must be evaluated in an EIR is the “no project alternative,” regardless of whether it is a feasible alternative to the Project, i.e. would meet the project objectives or requirements. Under this alternative, the environmental impacts that would occur if the OBMPU facilities and programs are not implemented are evaluated. However, under a no project alternative, water management activities in the Chino Basin do not go away. By default, the Chino Basin stakeholders would continue to implement the “Baseline Alternative,” which represents the “business as usual” approach to water resources management in the Basin. This alternative represents the continuation of OBMP programs under the approved Peace I, and Peace II Agreements, and as approved in the 2017 Addendum to the OBMP, which enabled a “temporary increase in the Safe Storage Capacity [SSC] from 500,000 af to 600,000 af for the period of July 1, 2017 through June 30, 2021 […] until a comprehensive re-evaluation of the Safe Storage Capacity value/concept can be completed before June 30, 2021.”[1] Given that this increase in SSC is temporary, after 2021, the SSC would be lowered to the levels outlined as part of the Peace I and Peace II agreements. This would circumvent the current understand of the Basin’s hydrology and subsequent understanding of the SSC as described in Chapter 3, Project Description. This alternative includes the installation of water infrastructure on an as-needed basis to meet the Peace I and II Agreement programs outlined in the OBMP, without installing those facilities required to achieve the objectives of the proposed OBMPU.

[1] Tom Dodson & Associates. (2017). *Addendum No. 1 to the Optimum Basin Management Program Project*. Page 2.

1.6.2 Discussion

The No Project/Baseline alternative to the proposed project would be feasible but would not meet the fundamental project objectives outlined in the OBMPU Project Description, which are to increase the water supplies available for the Chino Basin Parties and to improve water supply reliability in accordance with the current understanding of the Basin hydrology. The No Project/Baseline Alternative has comparable environmental impacts for all of the resource issues, except for those related to hydrology/water quality. The No Project/Baseline Alternative is forecast to have significant unavoidable adverse impacts to hydrology/water quality, and would cause greater significant unavoidable adverse impacts under utilities and service systems than the OBMPU. Further, although the No Project/Baseline alternative would reduce potentially significant impacts identified in this DSEIR as compared to the proposed project, it would lead to greater impacts in some other areas, including hydrology/water quality and utilities and service systems. In the final analysis, the No Project/Baseline alternative clearly cannot be considered the environmentally superior alternative to the proposed project from a total environmental standpoint, because the environmental damage from implementing it is forecast to cause a significant adverse impact when compared to implementing OBMPU. Based on the findings in this alternative evaluation, the OBMPU Alternative is the environmentally superior alternative.

Finally, under the No Project/Baseline Alternative, the ability to attain the goals and objectives as described under Chapter 3, Project Description, in this DSEIR would be virtually eliminated. The stakeholders in the Basin would be disabled in their attempt to collectively correct and address drivers and trends in today's water management framework that may challenge the ability of the Parties to protect their collective interests in the Chino Basin and their water supply reliability. On that basis, the No Project/Baseline alternative is rejected because it would not obtain most of the Project's basic objectives.

1.7 AREAS OF CONTROVERSY

No areas of controversy are known or have been expressed by the surrounding communities.

1.8 SUMMARY OF IMPACTS AND AVOIDANCE, MINIMIZATION AND MITIGATION MEASURES DISCUSSED IN THIS DRAFT EIR

Table 1.5-1 provides a summary of all impacts and mitigation measures identified in the detailed environmental evaluation presented in Chapter 4 of this DSEIR. This summary is meant to provide a quick reference to proposed Project impacts, but the reader is referenced to Chapter 4 to understand the assumptions, method of impact analysis and rationale for the findings and conclusions presented in Table 1.6-1.

Table 1.5-1
SUMMARY OF IMPACTS AND AVOIDANCE, MINIMIZATION AND MITIGATION MEASURES DISCUSSED IN THIS DRAFT SEIR

Environmental Category / Avoidance, Minimization and Mitigation Measures	Responsible Agency
AIR QUALITY	
AQ-1 When using construction equipment greater than 150 horsepower (>150 hp), the Construction Contractor shall ensure that off-road diesel construction equipment complies with the Environmental Protection Agency (EPA)/California Air Resources Board (CARB) Tier 4 emissions standards or equivalent and shall ensure that all construction equipment is tuned and maintained in accordance with the manufacturer's specifications.	IEUA, Watermaster, or other Implementing Agency
AQ-2 All actively graded areas within the Project site shall be watered at 2.1-hour watering intervals (e.g., 4 times per day) or a movable sprinkler system shall be in place to ensure minimum soil moisture of 12 percent (%) in maintained for actively graded areas. Moisture content can be verified with use of a moisture probe by the grading contractor.	IEUA, Watermaster, or other Implementing Agency

Impact Description	Impact After Mitigation
The Project-specific evaluation of emissions presented in the preceding analysis demonstrates that after implementation of the recommended mitigation measures, neither construction or operation of the proposed Project would result in any exceedance of thresholds for a criteria pollutant. Furthermore, the Project is consistent with the AQMP; the air quality impact for Project-related LST impacts, including construction of the OBMPU and of the pipeline alignment, are considered to be less than significant; and, sensitive receptors would not be subject to a significant air quality impact during Project construction or operations.	Mitigation measures required to reduce air quality impacts would: minimize the horsepower of construction equipment, ensure that off-road diesel construction equipment conforms to Tier 4 standards, and ensure that all construction equipment is tuned and maintained in accordance with manufacturer specifications; and, ensure that all graded areas within future OBMPU Project sites are watered at 2.1 hour watering intervals or otherwise ensure a soil moisture of 12%. As a result, there will not be any unavoidable Project specific or cumulative adverse impacts to air quality from implementing the Project as proposed.

Environmental Category / Avoidance, Minimization and Mitigation Measures	Responsible Agency
BIOLOGICAL RESOURCES	
BIO-1 Where future project-related impacts will affect undeveloped land, site surveys shall be conducted by a qualified biologist/ecologist. If sensitive species are identified as a result of the survey for which mitigation/compensation must be provided in accordance with regulatory requirements, the following subsequent mitigation actions will be taken: a. The project proponent shall provide compensation for sensitive habitat acreage lost by acquiring and protecting in perpetuity (through property or mitigation bank credit acquisition) habitat for the sensitive species at a ratio of not less than 1:1 for habitat lost. The property acquisition shall include the presence of at least one animal or plant per animal or plant lost at the development site to compensate for the loss of individual sensitive species. b. The final mitigation may differ from the above values based on negotiations between the project proponent and USFWS and CDFW for any incidental take permits for listed species. The project proponent shall retain a copy of the incidental take permit as verification that the mitigation of significant biological resource impacts at a project site with sensitive biological resources has been accomplished.	IEUA, Watermaster, or other Implementing Agency

Environmental Category / Avoidance, Minimization and Mitigation Measures		Responsible Agency
	c. Preconstruction botanical surveys for special-status plant communities and special-status plant species will be conducted. in areas that were not previously surveyed because of access or timing issues or project design changes, pre-construction surveys for special-status plant communities and special-status plant species will be conducted before the start of ground-disturbing activities during the appropriate blooming period(s) for the species.	
BIO-2	Biological Resources Management Plan: During final design, a BRMP will be prepared to assemble the biological resources mitigation measures for each specific infrastructure improvement in the future. The BRMP will include terms and conditions from applicable permits and agreements and make provisions for monitoring assignments, scheduling, and responsibility. The BRMP will also discuss habitat replacement and revegetation, protection during ground-disturbing activities, performance (growth) standards, maintenance criteria, and monitoring requirements for temporary and permanent native plant community impacts. The parameters of the BRMP will be formed with the mitigation measures from the project-level EIR/EIS, including terms and conditions as applicable from the USFWS, USACE, SWRCB/RWQCB, and CDFW.	IEUA, Watermaster, or other Implementing Agency
BIO-3	Prior to discharge of fill or streambed alteration of jurisdictional areas, the project proponent shall obtain regulatory permits from the U.S. Army Corps of Engineers, local Regional Water Quality Control Board and the California Department of Fish and Wildlife. Any future project that must discharge fill into a channel or otherwise alter a streambed shall be minimized to the extent feasible, and any discharge of fill not avoidable shall be mitigated through compensatory mitigation. Mitigation can be provided by restoration of temporary impacts, enhancement of existing resources, or purchasing into any authorized mitigation bank or in-lieu fee program; by selecting a site of comparable acreage near the site and enhancing it with a native riparian habitat or invasive species removal in accordance with a habitat mitigation plan approved by regulatory agencies; or by acquiring sufficient compensating habitat to meet regulatory agency requirements. Typically, regulatory agencies require mitigation for jurisdictional waters without any riparian or wetland habitat to be mitigated at a 1:1 ratio. For loss of any riparian or other wetland areas, the mitigation ratio will begin at 2:1 and the ratio will rise based on the type of habitat, habitat quality, and presence of sensitive or listed plants or animals in the affected area. A Habitat Mitigation and Monitoring Proposal shall be prepared and reviewed and approved by the appropriate regulatory agencies. The project proponent will also obtain permits from the regulatory agencies (U.S. Army Corps of Engineers, Regional Water Quality Control Board, CDFW and any other applicable regulatory agency with jurisdiction over the proposed facility improvement) if any impacts to jurisdictional areas will occur. These agencies can impose greater mitigation requirements in their permits, but Caltrans will utilize the ratios outlined above as the minimum required to offset or compensate for impacts to jurisdictional waters, riparian areas or other wetlands.	IEUA, Watermaster, or other Implementing Agency
BIO-4	Jurisdictional Water Preconstruction Surveys: A jurisdictional water preconstruction survey will be conducted at least six months before the start of ground-disturbing activities to identify and map all jurisdictional waters in the project footprint and if possible within a 250-foot buffer. The purpose of this survey is to confirm the extent of jurisdictional waters in areas where permission to enter was not previously granted and where aerial photograph interpretation was used to estimate the extent of these features. If possible, surveys would be performed during the spring, when plant species are in bloom and hydrological indicators are most readily identifiable. These results would then be used to calculate impact acreages and determine the amount of compensatory mitigation required to offset the loss of wetland functions and values.	IEUA, Watermaster, or other Implementing Agency

Environmental Category / Avoidance, Minimization and Mitigation Measures		Responsible Agency
BIO-5	It is illegal to "take" active bird nests of native birds, and if such nests are present at a project site, no take is allowed. To avoid an illegal take of active bird nests, any grubbing, brushing or tree removal will be conducted outside of the State identified nesting season (nesting season is approximately from February 15 through September 1 of a given calendar year). Alternatively, coordination with the CDFW to conduct nesting bird surveys will be completed, and methodology of surveys will be agreed upon. All nesting bird surveys will be conducted by a qualified biologist prior to initiation of ground disturbance to demonstrate that no bird nests will be disturbed by project construction activities.	IEUA, Watermaster, or other Implementing Agency
BIO-6	Prior to commencement of construction activity in locations that are not fully developed, protocol burrowing owl survey will be conducted using the 2012 survey protocol methodology identified in the "Staff Report on Burrowing Owl Mitigation, State of California, Natural Resources Agency, Department of Fish and Game, March 7, 2012", or the most recent CDFW survey protocol available. Protocol surveys shall be conducted by a qualified biologist to determine if any burrowing owl burrows are located within the potential area of impact. If occupied burrows may be impacted, an impact minimization plan shall be developed and approved by CDFW that will protect the burrow in place or provide for passive relocation to an alternate burrow within the vicinity but outside of the project footprint in accordance with current CDFW guidelines. Active nests must be avoided with a 250-foot buffer until all nestlings have fledged.	IEUA, Watermaster, or other Implementing Agency
BIO-7	Prior to commencement of construction activity on a project facility within a MSHCP/HCP plan area, consistency with that plan, or take authorization through that plan, shall be obtained. Through avoidance, compensation or a comparable mitigation alternative, each project shall be shown to be consistent with a MSHCP/HCP.	IEUA, Watermaster, or other Implementing Agency
BIO-8	Place primary emphasis on the preservation of large, unbroken blocks of natural open space and wildlife habitat area, and protect the integrity of habitat linkages. As part of this emphasis, incorporate programs for purchase of lands, clustering of development to increase the amount of preserved open space, and assurances that the construction of facilities or infrastructure improvements meet standards identical to the environmental protection policies applicable to the specific facilities improvement.	IEUA, Watermaster, or other Implementing Agency

Environmental Category / Avoidance, Minimization and Mitigation Measures		Responsible Agency
BIO-9	Require facility designs and maintenance activities to be planned to protect habitat values and to preserve significant, viable habitat areas and habitat connection in their natural conditions. a. Within designated habitat areas of rare, threatened or endangered species, prohibit disturbance of protected biotic resources. b. Within riparian areas and wetlands subject to state or federal regulations, riparian woodlands, oak and walnut woodland, and habitat linkages, require that the vegetative resources which contribute to habitat carrying capacity (vegetative diversity, faunal resting sites, foraging areas, and food sources) are preserved in place or replaced so as not to result in an measurable reduction in the reproductive capacity of sensitive biotic resources. c. Within habitats of plants listed by the CNDDB or CNPS as “special” or “of concern,” require that new facilities do not result in a reduction in the number of these plants, if they are present.	IEUA, Watermaster, or other Implementing Agency
BIO-10	Maximize the preservation of individual oak, sycamore and walnut trees within proposed OBMPU facility sites.	IEUA, Watermaster, or other Implementing Agency
BIO-11	Require the establishment of buffer zones adjacent to areas of preserved biological resources. Such buffer zones shall be of adequate width to protect biological resources from grading and construction activities, as well as from the long-term use of adjacent lands. Permitted land modification activities with preservation and buffer areas are to be limited to those that are consistent with the maintenance of the reproductive capacity of the identified resources. The land uses and design of project facilities adjacent to a vegetative preservation area, as well as activities within the designated buffer area are not to be permitted to disturb natural drainage patterns to the point that vegetative resources receive too much or too little water to permit their ongoing health. In addition, landscape adjacent to areas of preserved biological resources shall be designed so as to avoid invasive species which could negatively impact the value of the preserved resource.	IEUA, Watermaster, or other Implementing Agency
BIO-12	Following construction activities within or adjacent to any natural area, the disturbed areas shall be revegetated using a plant mix of native plant species that are suitable for long term vegetation management at the specific site, which shall be implemented in cooperation with regulatory agencies and with oversight from a qualified biologist. The seeds mix shall be verified to contain the minimum amount of invasive plant species seeds reasonably available for the project area.	IEUA, Watermaster, or other Implementing Agency
BIO-13	Clean Construction Equipment. During construction, equipment will be washed before entering the project footprint to reduce potential indirect impacts from inadvertent introduction of nonnative invasive plant species. Mud and plant materials will be removed from construction equipment when working in native plant communities, near special-status plant communities, or in areas where special-status plant species have been identified.	IEUA, Watermaster, or other Implementing Agency

Environmental Category / Avoidance, Minimization and Mitigation Measures		Responsible Agency
BIO-14	Contractor Education and Environmental Training. Personnel who work onsite will attend a Contractor Education and Environmental Training session. The environmental training is likely to be required by the regulatory agencies and will cover general and specific biological information on the special-status plant species, including the distribution of the resources, the recovery efforts, the legal status of the resources, and the penalties for violation of project permits and laws. The Contractor Education and Environmental Training sessions will be given before the initiation of construction activities and repeated, as needed, when new personnel begin work within the project limits. Daily updates and synopsis of the training will be performed during the daily safety ("tailgate") meeting. All personnel who attend the training will be required to sign an attendance list stating that they have received the Contractor Education and Environmental Training.	IEUA, Watermaster, or other Implementing Agency
BIO-15	Biological Monitor to Be Present during Construction Activities in areas where impacts to Riparian, Riverine, Wetland, Endangered Species or Endangered Species Critical habitat occurs. A biological monitor (or monitors) will be present onsite during construction activities that could result in direct or indirect impacts on sensitive biological resources (including listed species) and to oversee permit compliance and monitoring efforts for all special-status resources. A biological monitor (qualified biologist) is any person who has a bachelor's degree in biological sciences, zoology, botany, ecology, or a closely related field and/or has demonstrated field experience in and knowledge about the identification and life history of the special-status species or jurisdictional waters that could be affected by project activities. The biological monitor(s) will be responsible for monitoring the Contractor to ensure compliance with the Section 404 Individual Permit, Section 401 Water Quality Certification and the Lake and Streambed Alteration Agreement. Activities to ensure compliance would include performing construction-monitoring activities, including monitoring environmental fencing, identifying areas where special-status plant species are or may be present, and advising the Contractor of methods that may minimize or avoid impacts on these resources. Biological monitor(s) will be required to be present in all areas during ground disturbance activities and for all construction activities conducted within or adjacent to identified Environmentally Sensitive Areas, Wildlife Exclusion Fencing, and Non-Disturbance Zones.	IEUA, Watermaster, or other Implementing Agency
BIO-16	Food and Trash: All food-related trash items (e.g., wrappers, cans, bottles, food scraps) will be disposed of in closed containers and removed at least once a week from the construction site.	IEUA, Watermaster, or other Implementing Agency
BIO-17	Rodenticides and Herbicides: Use of rodenticides and herbicides in the project footprint will be restricted. This measure is necessary to prevent poisoning of special-status species and the potential reduction or depletion of the prey populations of special–status wildlife species. Where pesticides must be used, they must be used in full accordance with use instructions for the particular chemical	IEUA, Watermaster, or other Implementing Agency
BIO-18	Wildlife Exclusion Fencing: Exclusion barriers (e.g., silt fences) will be installed at the edge of the construction footprint and along the outer perimeter of Environmentally Sensitive Areas and Environmentally Restricted Areas to restrict special-status species from entering the construction area. The design specifications of the exclusion fencing will be determined through consultation with the USFWS and/or CDFW. Clearance surveys will be conducted for special-status species after the exclusion fence is installed. If necessary, clearance surveys will be conducted daily.	IEUA, Watermaster, or other Implementing Agency

Environmental Category / Avoidance, Minimization and Mitigation Measures		Responsible Agency
BIO-19	Equipment Staging Areas: Staging areas for construction equipment will be located outside sensitive biological resources areas, including habitat for special-status species, jurisdictional waters, and wildlife movement corridors, to the maximum extent possible.	IEUA, Watermaster, or other Implementing Agency
BIO-20	Plastic mono-filament netting (erosion-control matting) or similar material will not be used in erosion control materials to prevent potential harm to wildlife. Materials such as coconut coir matting or tackified hydroseeding compounds will be used as substitutes.	IEUA, Watermaster, or other Implementing Agency
BIO-21	Vehicle Traffic: During ground-disturbing activities, project-related vehicle traffic will be restricted within the construction area to established roads, construction areas, and other designated areas to prevent avoidable impacts. Access routes will be clearly flagged and off-road traffic will be prohibited.	IEUA, Watermaster, or other Implementing Agency
BIO-22	Entrapment Prevention: All excavated, steep-sided holes or trenches more than 8 inches deep will be covered at the close of each working day with plywood or similar materials, or a minimum of one escape ramp constructed of earth fill for every 10 feet of trenching will be provided to prevent the entrapment of wildlife. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals. All culverts or similar enclosed structures with a diameter of 4 inches or greater will be covered, screened, or stored more than 1 foot off the ground to prevent use by wildlife. Stored material will be cleared for common and special-status wildlife species before the pipe is subsequently used or moved.	IEUA, Watermaster, or other Implementing Agency
BIO-23	Weed Control Plan: A Weed Control Plan will be prepared and implemented to minimize or avoid the spread of weeds during ground-disturbing activities. In the Weed Control Plan, the following topics will be addressed: • Schedule for noxious weed surveys. • Weed control treatments, including permitted herbicides, and manual and mechanical methods for application; herbicide application will be restricted in Environmentally Sensitive Areas. • Timing of the weed control treatment for each plant species. • Fire prevention measures.	IEUA, Watermaster, or other Implementing Agency
BIO-24	Dewatering/Water Diversion: Open or flowing water may be present during construction. If construction occurs where there is open or flowing water, a strategy that is approved by the resource agencies (e.g., USACE, SWRCB/RWQCB, and CDFW), such as the creation of cofferdams, will be used to dewater or divert water from the work area. If cofferdams are constructed, implementation of the following cofferdam or water diversion measures is recommended to avoid and lessen impacts on jurisdictional waters during construction: • The cofferdams, filter fabric, and corrugated steel pipe are to be removed from the creek bed after completion of the project. • The timing of work within all channelized waters is to be coordinated with the regulatory agencies. • The cofferdam is to be placed upstream of the work area to direct base flows through an appropriately sized diversion pipe. The diversion pipe will extend through the Contractor's work area, where possible, and outlet through a sandbag dam at the downstream end. • Sediment catch basins immediately below the construction site are to be constructed when performing in-channel construction to prevent silt- and sediment-laden water from entering the main stream flow. Accumulated sediments will be periodically removed from the catch basins.	IEUA, Watermaster, or other Implementing Agency

Environmental Category / Avoidance, Minimization and Mitigation Measures		Responsible Agency
BIO-25	Permanent Water Diversion Projects: The Watermaster shall continue to prepare the annual Prado Basin Habitat Sustainability Monitoring Program. A second-tier CEQA evaluation shall be conducted for proposed water diversion projects associated with the OBMPU. The potential impacts to Prado Basin habitat from implementation of such diversion projects shall receive public review, including pertinent wildlife management agencies and interested parties.	IEUA, Watermaster, or other Implementing Agency

Impact Description	Impact After Mitigation
As described in Subchapter 4.3, development of the OBMPU, because the specific locations for future OBMPU Projects are not presently known, there is a potential that a future OBMPU facility may be developed in an area containing significant biological resources that cannot be avoided. Though substantial mitigation is provided to minimize impacts, there are certain areas within the overall project area of potential impact where the resource impacts from constructing new infrastructure may cause unavoidable significant adverse impacts on biological resources.	Because the individual projects implemented throughout the Program could result in potentially significant impacts on biological resources, mitigation measures were designed to avoid or reduce the impacts on these resources. The mitigation strategy includes avoidance of impacts on biological resources to the extent possible: field verification of sensitive resources and filling data gaps; the formulation of alternative designs (minimization and avoidance); limiting modifications to access and egress points to facilities (minimization); designing cuts and fills to minimize the area of disturbance; and where necessary, and compensation to offset unavoidable impacts to individual species or sensitive habitat. Given that there are certain areas within the overall project area of potential impact where the resource impacts from constructing new infrastructure may cause unavoidable significant adverse impacts on biological resources. These areas are highly dependent upon the final design of each Program goal, i.e. individual project, and if those actions cannot be reasonably or feasibly offset, the ultimate design of these Program improvements must be based on sound engineering. In each case where most environmental impacts cannot be fully avoided, it may be possible to avoid certain impacts by designs that avoid such impacts through sound mitigation-based planning at each step. Given the speculative nature of the locations of proposed OBMPU Project, there is a potential that an individual OBMPU facility may be developed and have operations within an area containing biological resources that cannot be avoided, even at the design level. Therefore, the program's contribution is considered cumulatively considerable, and would result in a significant or cumulatively considerable adverse impact. Furthermore, though substantial mitigation is provided to minimize impacts under most circumstances for future OBMPU facilities, no feasible mitigation exists to completely avoid impacts to biological resources within the Chino Basin. Thus, the proposed Project is forecast to cause significant unavoidable adverse impacts to biological resources.

<table>
<tr><th>Environmental Category /Avoidance, Minimization and Mitigation Measures</th><th>Responsible Agency</th></tr>
<tr><td>CULTURAL RESOURCES – ARCHAEOLOGICAL

CUL-1: Where a future discretionary project requiring a Negative Declaration or follow-on EIR is proposed within an existing facility that has been totally disturbed due to it undergoing past engineered site preparation (such as a well site or water treatment facility site), the agency implementing the OBMPU project will not be required to complete a follow on cultural resources report (Phase I Cultural Resources Investigation) unless the Implementing Agency is seeking State funding, in which case the Implementing Agency must prepare a Phase I Cultural Resources Investigation to satisfy State CEQA-plus requirements.

Where a Phase I Cultural Resources Investigation is not required, the following shall be required to minimize impacts to any accidentally exposed cultural resource materials:
• Should any cultural resources be encountered during construction of these facilities, earthmoving or grading activities in the immediate area of the finds shall be halted and an onsite inspection shall be performed immediately by a qualified archaeologist. Responsibility for making this determination shall be with the Implementing Agency’s onsite inspector. The archaeological professional shall assess the find, determine its significance, and make recommendations for appropriate mitigation measures within the guidelines of the California Environmental Quality Act.</td><td>IEUA, Watermaster, or other Implementing Agency</td></tr>
<tr><td>CUL-2: Where a future discretionary project requiring a Negative Declaration or follow-on EIR is proposed within an undisturbed site and/or a site that will require substantial earthmoving activities and/or excavation, and/or the Implementing Agency is seeking State funding, the agency implementing the OBMPU project shall complete a follow on cultural resources report (Phase I Cultural Resources Investigation) regardless of whether the Implementing Agency is seeking State funding.

Where a Phase I Cultural Resources Investigation is required, the following phases of identification, evaluation, mitigation, and monitoring shall be followed for a given OBMPU Project:

1. Phase I (Identification): A Phase I Investigation to identify historical, archaeological, or paleontological resources in a project area shall include the following research procedures, as appropriate:
• Focused historical/archaeological resources records searches at SCCIC and/or EIC, depending on the project location, and paleontological resources records searches by NHMLAC, SBCM, and/or the Western Science Center in Hemet;
• Historical background research, geoarchaeological profile analysis, and paleontological literature review;
• Consultation with the State of California Native American Heritage Commission, Native American tribes in the surrounding area, pertinent local government agencies, and local historic preservation groups;
• Field survey of the project area by qualified professionals of the pertinent discipline and at the appropriate level of intensity as determined on the basis of sensitivity assessment and site conditions;
• Field recordation of any cultural resources encountered during the survey and proper documentation of the resources for incorporation into the appropriate inventories or databases.
2. Phase II (Evaluation): If cultural resources are encountered in a project area, a Phase II investigation shall be required to evaluate the potential significance of the resources in accordance with the statutory/regulatory framework outlined above. A typical Phase II study consists of the following research procedures:</td><td>IEUA, Watermaster, or other Implementing Agency</td></tr>
</table>

Environmental Category /Avoidance, Minimization and Mitigation Measures	Responsible Agency
• Preparation of a research design to discuss the specific goals and objectives of the study in the context of important scientific questions that may be addressed with the findings and the significance criteria to be used for the evaluation, and to formulate the proper methodology to accomplish such goals; • In-depth exploration of historical, archaeological, or paleontological literature, archival records, as well as oral historical accounts for information pertaining to the cultural resources under evaluation; • Fieldwork to ascertain the nature and extent of the archaeological/paleontological remains or resource-sensitive sediments identified during the Phase I study, such as surface collection of artifacts, controlled excavation of units, trenches, and/or shovel test pits, and collection of soil samples; • Laboratory processing and analyses of the cultural artifacts, fossil specimens, and/or soil samples for the proper recovery, identification, recordation, and cataloguing of the materials collected during the fieldwork and to prepare the assemblage for permanent curation, if warranted. 3. Phase III (Mitigation): For resources that prove to be significant under the appropriate criteria, mitigation of potential project impact is required. Depending on the characteristics of each resource type and the unique aspects of significance for each individual resource, mitigation may be accomplished through a variety of different methods, which shall be determined by a qualified archaeologist, paleontologist, historian, or other applicable professional in the “cultural resources” field. Typical mitigation for historical, archaeological, or paleontological resources, however, may focus on the following procedures, aimed mainly at the preservation of physical and/or archival data about a significant cultural resource that would be impacted by the project: • Data recovery through further excavation at an archaeological site or a paleontological locality to collect a representative sample of the identified remains, followed by laboratory processing and analysis as well as preparation for permanent curation; • Comprehensive documentation of architectural and historical data about a significant building, structure, or object using methods comparable to the appropriate level of the Historic American Buildings Survey (HABS) and the Historic American Engineering Record (HAER) for permanent curation at a repository or repositories that provides access to the public; • Adjustments to project plans to minimize potential impact on the significance and integrity of the resource(s) in question. 4. Phase III (Monitoring): At locations that are considered sensitive for subsurface deposits of undetected archaeological or paleontological remains, all earth-moving operations shall be monitored continuously or periodically, as warranted, by qualified professional practitioners. Archaeological monitoring programs shall be coordinated with the nearest Native American groups, who may wish to participate.	
CUL-3: After each phase of the studies required by mitigation measure CUL-2 has been completed, where required, a complete report on the methods, results, and final conclusions of the research procedures shall be prepared and submitted to SCCIC, EIC, NHMLAC, and/or SBCM, as appropriate and in addition to the lead agency for the project, for permanent documentation and easy references by future researchers.	IEUA, Watermaster, or other Implementing Agency

Environmental Category /Avoidance, Minimization and Mitigation Measures	Responsible Agency
CUL-4: Prior to construction of OBMPU related facilities, the Watermaster and IEUA shall confer with the Parties to establish a programmatic agreement with SHPO that will stipulate a set of mutually accepted guidelines that address research procedures and the types of potential cultural resources that may be excluded from further consideration before OBMPU Projects are implemented, such as common infrastructure features that are more than 50 years of age, but have a low potential to be considered historically significant, such as existing roadways and minor, utilitarian structures serving as pumphouses or reservoirs, as well as numerous historic-period buildings that are adjacent to the project boundaries but are unlikely to receive any direct or indirect impact. Once this agreement has been made with SHPO, Watermaster shall retain the agreement in the Project file, and shall ensure that all Stakeholder Parties are given copies of the agreement for reference on future OBMPU Projects.	IEUA, Watermaster, or other Implementing Agency

Impact Description	Impact After Mitigation
As described in Subchapter 4.4, the Chino Basin is a large expanse of area that may contain historical, archaeological, or paleontological resources. As such, future OBMPU projects may be developed within sites that contain such resources. Since the proposed project is at the programmatic level, specific locations for many of the proposed OBMPU projects have not yet been determined. As such, substantive mitigation has been identified to minimize impacts to cultural resources.	Mitigation measures required to reduce cultural resource impacts would: exclude highly disturbed sites from requiring further cultural resource evaluation except to adhere to procedures pertaining to the treatment of accidental discoveries, unless the Implementing Agency is seeking state funding for the project; ensure that future OBMPU Projects that are located within undisturbed areas, within a site that will require substantial earthmoving activities and/or excavation, and/or the Implementing Agency is seeking State funding, will require a follow on Phase I Cultural Resources Investigation and enforces several phases or steps beyond the completion of a Phase I Cultural Resources Investigation that would cover the identification, evaluation, mitigation, and monitoring associated with a given project where resources may be located; ensure that a complete report on the methods, results, and final conclusions of the research procedures is prepared and submitted to SCCIC, EIC, NHMLAC, and/or SBCM for projects containing cultural resources; and, set a precedent for future OBMPU Projects that would streamline the design and completion of future Phase I Cultural Resources Investigations. As described in Subchapter 4.4, no unavoidable significant impact to cultural resources will result from implementing the proposed Project.

Environmental Category /Avoidance, Minimization and Mitigation Measures		Responsible Agency
ENERGY		
EN-1	Where feasible, future OBMPU Projects shall consider the use of alternative energy sources to serve the future OBMPU Facility energy demands.	IEUA, Watermaster, or other Implementing Agency
EN-2	Future OBMPU Projects that are anticipated to utilize a substantial amount of energy for operations, such as regional groundwater treatment plants, pump stations, upgrades to expand capacity at existing water treatment plants, etc., shall undergo subsequent CEQA documentation to address operational energy demands and GHG emissions related to energy demands. The determination of whether a project will be a large consumer of energy shall be left to the Watermaster or Implementing Agency for the Project's discretion.	IEUA, Watermaster, or other Implementing Agency

Impact Description	Impact After Mitigation
As discussed in Subchapter 3.5, OBMPU construction and operation would not result in in inefficient, wasteful or unnecessary consumption of energy and would not Conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Due to the scope of the OBMPU, there is a potential for certain types of OBMPU Facilities to require a substantial amount of operational energy, as such, mitigation is required to reduce impacts below significance thresholds.	Mitigation measures required to reduce energy impacts would: consider use of alternative energy sources for future OBMPU Projects; and, for those Facilities that are anticipated to utilize a substantial amount of energy for operations, subsequent CEQA documentation to address operational energy demands. With implementation of the above mitigation measures, and compliance with Federal and State regulations pertaining to energy conservation, the proposed OBMPU is anticipated to have a less than significant impact on energy demand and resources.

Environmental Category /Avoidance, Minimization and Mitigation Measures	Responsible Agency
GREENHOUSE GASES No GHG specific mitigations required.	--

Impact Description	Impact After Mitigation
As described in Subchapter 4.6, the proposed project will generate approximately 18,986.93 metric tons CO_2e per year. As such, the construction of the OBMPU would generate emissions beyond the SCAQMD 3,000 $MTCO_2$e/yr and 10,000 $MTCO_2$e/yr thresholds, and as such, will have a significant and unavoidable adverse impact under Greenhouse Gas.	With implementation of the recommended Air Quality mitigation measures identified Subchapter 4, the Air Quality Section of this Draft EIR, and with implementation of the energy related mitigation, GHG emissions still exceed the SCAQMD screening thresholds of 3,000 $MTCO_2$e and 10,000 $MTCO_2$e/yr. Thus, the proposed Project would not result in new significant GHG impacts nor would it result in a substantial increase in the severity of GHG impacts with implementation of the identified Air Quality mitigation measures. Project-related GHG emissions are not considered to be significant or adverse and would not result in an unavoidable significant adverse impact on global climate change. No Project-specific feasible mitigation measures have been identified that would reduce these emissions to levels that are less than significant. Thus, exceedances of applicable SCAQMD regional thresholds are considered significant and unavoidable, and the construction of the proposed project would create a significant cumulative impact to global climate change.

Environmental Category / Avoidance, Minimization and Mitigation Measures	Responsible Agency
HYDROLOGY AND WATER QUALITY	
HYD-1: Watermaster shall review each Storage and Recovery Program application, and estimate the surface and ground water systems response (estimate the potential for loss of pumping sustainability). Watermaster shall then prepare a report that describes the response and potential MPI to the Chino Basin, and shall develop mitigation requirements to mitigate MPI caused by the proposed Storage and Recovery Program. The Storage and Recovery Program Applicant (Implementing Agency) will develop mitigation measures pursuant to these requirements established by the Watermaster; these measures shall be incorporated into their Storage and Recovery Program application. Upon approval by Watermaster, these mitigation measures will be incorporated into the Storage and Recovery Program storage agreement. Applications that do not adequately mitigate the potential for loss of pumping sustainability, which will be determined by the Watermaster, shall not be accepted and therefore will not be developed.	IEUA, Watermaster, or other Implementing Agency
HYD-2: The data gathered through Watermaster's comprehensive groundwater-level monitoring shall be used to identify potential impacts on pumping sustainability and to develop mitigation requirements to mitigate for these impacts. Potential mitigation includes, but is not limited to: (1) modifying the put and take cycles to minimize impacts to pumping sustainability, (2) strategically increasing supplemental water recharge to mitigate loss of pumping sustainability, (3) modifying a party's affected well (lowering pump bowls), (4) providing an alternate supply to the affected party to ensure it can meet its demands, (5) a combination of (1) through (4), and (6) the implementation of a monitoring program to verify the effectiveness of the mitigation actions. The operation of certain facilities proposed as part of the OBMPU can be used to implement these mitigation actions.	IEUA, Watermaster, or other Implementing Agency
HYD-3: Watermaster shall review each Storage and Recovery Program application, and estimate the surface and ground water systems response (estimate the potential for new land subsidence). Watermaster shall then prepare a report that describes the response and potential MPI to the Chino Basin, and shall develop mitigation requirements to mitigate MPI caused by the proposed Storage and Recovery Program. The Storage and Recovery Program Applicant (Implementing Agency) will develop mitigation measures pursuant to these requirements established by the Watermaster; these measures shall be incorporated into their Storage and Recovery Program application. Upon approval by Watermaster, these mitigation measures will be incorporated into the Storage and Recovery Program storage agreement. Applications that do not adequately mitigate the potential for new land subsidence, which will be determined by the Watermaster, shall not be accepted and therefore will not be developed.	IEUA, Watermaster, or other Implementing Agency
HYD-4: The data gathered through Watermaster's comprehensive groundwater-level and ground-level monitoring shall be used to identify the potential for new land subsidence and to develop mitigation requirements to mitigate for these impacts. Potential mitigation includes, but is not limited to: (1) limiting facilities and operations of the Storage and Recovery Programs to MZ-2 and -3, (2) modifying the put and take cycles to ensure the Storage and Recovery Program does not contribute to the lowering of groundwater-levels below the new land subsidence metric, (4) providing an alternate supply to MZ-1 producers to maintain groundwater-levels above the new land subsidence metric, to the extent that the Storage and Recovery Program operation affect them, (5) a combination of (1) through (4) above, and (6) the implementation of a monitoring program to verify the effectiveness of the mitigation actions. The operation of certain facilities proposed as part of the OBMPU can be used to implement these mitigation actions.	IEUA, Watermaster, or other Implementing Agency

Environmental Category / Avoidance, Minimization and Mitigation Measures		Responsible Agency
HYD-5:	Watermaster shall estimate the reduction in net recharge and Safe Yield for each Storage and Recovery Program/Project and deduct it from water stored in each Storage and Recovery Program storage account, which will compensate for its impact on net recharge and Safe Yield. Watermaster shall review these impacts and develop mitigation requirements for the proposed Storage and Recovery Program. The Storage and Recovery Program Applicant (Implementing Agency) will develop mitigation measures pursuant to the requirements established by Watermaster; these measures shall be incorporated into the Applicant's Storage and Recovery Program application. Upon approval by Watermaster, these mitigation measures shall be incorporated into the Storage and Recovery Program storage agreement. Applications that do not adequately mitigate adverse impacts on net recharge and Safe Yield, which will be determined by Watermaster, shall not be accepted and therefore will not be developed.	IEUA, Watermaster, or other Implementing Agency
HYD-6:	Watermaster's comprehensive monitoring and modeling that estimates net recharge of the Chino Basin shall be used to identify potential and actual losses of net recharge and to develop mitigation requirements to mitigate impacts thereof. Potential mitigation includes, but is not limited to: (1) modifying the put and take cycles to minimize reductions in net recharge, (2) deducting the reduction in net recharge from its Storage and Recovery account, (3) recharge additional water to mitigate reductions in net recharge, (4) construct facilities in the southern part of the basin to eliminate the reduction of net recharge due to Storage and Recovery Programs, (5) a combination of (1) through (4), and (6) the implementation of a monitoring program to verify the effectiveness of the mitigation actions. The operation of certain facilities proposed as part of the OBMPU can be used to implement these mitigation actions.	IEUA, Watermaster, or other Implementing Agency
HYD-7:	Watermaster shall estimate the projected impacts that each Storage and Recovery Program may have on Hydraulic Control and review these impacts and develop mitigation requirements for the proposed Storage and Recovery Program. The Storage and Recovery Program Applicant (Implementing Agency) will develop mitigation measures pursuant to the requirements established by Watermaster; these measures shall be incorporated into the Applicant's Storage and Recovery Program application. Upon approval by Watermaster, these mitigation measures shall be incorporated into the Storage and Recovery Program storage agreement. Applications that do not adequately mitigate adverse impacts on hydraulic control, which will be determined by Watermaster, shall not be accepted and therefore will not be developed.	IEUA, Watermaster, or other Implementing Agency
HYD-8:	Watermaster's comprehensive monitoring and modeling that assesses the state of Hydraulic Control in Chino Basin shall be used to estimate groundwater outflow from Chino North to the Santa Ana River, assess the state of Hydraulic Control, determine if the Storage and Recovery Program will cause a loss of hydraulic control, and develop mitigation requirements to mitigate for impacts to the state of Hydraulic Control. Potential mitigation includes, but is not limited to: (1) modifying the put and take cycles to minimize discharges to the Santa Ana River and maintain Hydraulic Control, (2) construct facilities in the southern part of the basin to minimize discharges to the Santa Ana River and maintain Hydraulic Control, (3) a combination of (1) and (2), and (4) the implementation of a monitoring program to verify the effectiveness of the mitigation actions. The Project Description contains facilities and their operations that can be used to implement these mitigation actions. The operation of certain facilities proposed as part of the OBMPU can be used to implement these mitigation actions.	IEUA, Watermaster, or other Implementing Agency

Environmental Category / Avoidance, Minimization and Mitigation Measures		Responsible Agency
HYD-9:	Watermaster shall review each Storage and Recovery Program application, and estimate the surface and ground water systems response (estimate the potential for water quality degradation). Watermaster shall then prepare a report that describes the response and potential MPI to the Chino Basin, and shall develop mitigation requirements to mitigate MPI caused by the proposed Storage and Recovery Program. The Storage and Recovery Program Applicant (Implementing Agency) will develop mitigation measures pursuant to these requirements established by the Watermaster; these measures shall be incorporated into their Storage and Recovery Program application. Upon approval by Watermaster, these mitigation measures will be incorporated into the Storage and Recovery Program storage agreement. Applications that do not adequately mitigate the potential for water quality degradation, which will be determined by the Watermaster, shall not be accepted and therefore will not be developed.	IEUA, Watermaster, or other Implementing Agency
HYD-10:	The data gathered through Watermaster's comprehensive groundwater-quality monitoring shall be used to identify changes in the direction and velocity for each plume that can be attributed to a Storage and Recovery Program that may impact its remediation or the water quality at wells, and to develop mitigation requirements to mitigate for any impacts related to the change in direction or velocity attributed to a Storage and Recovery Program. Potential mitigation includes, but is not limited to: (1) modifying the put and take cycles to minimize changes in the plume's direction and velocity that may impact remediation, (2) constructing facility improvements to mitigate impacts on existing remediation, or (3) a combination of (1) and 2, and (4) the implementation of a monitoring program to verify the effectiveness of the mitigation actions. The operation of certain facilities proposed as part of the OBMPU can be used to implement these mitigation actions.	IEUA, Watermaster, or other Implementing Agency
HYD-11:	Watermaster shall periodically review current and projected Basin conditions and shall compare this information to the projected basin conditions assumed in the evaluation of the Storage and Recovery Program application process, compare the projected Storage and Recovery Program operations to actual Storage and Recovery Program operations. The Watermaster shall then make findings regarding the efficacy of the mitigation program and requirements required herein and by the Storage and Recovery Program storage agreements. Based on Watermaster's review and subsequent findings, where applicable, Watermaster shall require changes and/or modifications in the Storage and Recover Program storage agreements that will adequately mitigate MPI and related adverse impacts. The Watermaster shall continue to determine what Programs and Projects should be implemented or should be rejected based on their potential to contribute to or cause MPI or other adverse impacts to the Basin.	IEUA, Watermaster, or other Implementing Agency
HYD-12:	The Watermaster and/or Implementing Agency and construction contractor(s) shall select best management practices applicable to well development sites and any other OBMPU Projects that are less than one acre in size. BMPs shall include activities on each site to achieve a reduction in pollutants to the maximum extent practicable during the construction of each OBMPU facility, and to control urban runoff after each OBMPU facility is constructed and the well (if approved for operation post well testing) or other OBMPU facility is in operation.	IEUA, Watermaster, or other Implementing Agency

Environmental Category / Avoidance, Minimization and Mitigation Measures	Responsible Agency
HYD-13: Implementation of a Grading and Drainage Plan. Prior to construction of project facilities, the Watermaster and/or Implementing Agency shall either: (1) Within each facility surface runoff shall be collected and retained (for use onsite) or detained and percolated into the ground on the site such that site development results in no net increase in offsite stormwater flows. Detainment shall be achieved through Low Impact Development techniques whenever possible, and shall include techniques that remove the majority of urban storm runoff pollutants, such as petroleum products and sediment. The purpose of this measure is to remove the onsite contribution to cumulative urban storm runoff and ensure the discharge from the sites is treated to reduce contributions of urban pollutants to downstream flows and to groundwater; or, where it is not possible to eliminate stormwater flows off of a site or where otherwise appropriate, the Watermaster and/or Implementing Agency shall: (2) Prepare a grading and drainage plan that identifies anticipated changes in flow that would occur on site and minimizes any potential increases in discharge, erosion, or sedimentation potential in accordance with applicable regulations and requirements for the County and/or the City in which the facility would be located. In addition, all new drainage facilities shall be designed in accordance with standards and regulations. The plan shall identify and implement retention basins, best management practices, and other measures to ensure that potential increases in storm water flows and erosion would be minimized, in accordance with local requirements.	IEUA, Watermaster, or other Implementing Agency
HYD-14: To minimize potential ground disturbances associated with installation and maintenance of proposed monitoring equipment on or groundwater treatment at existing wells, the equipment and treatment facilities shall be installed within or along existing disturbed easements or right-of-way or otherwise disturbed areas, including access roads and pipeline or existing utility easements, whenever feasible.	IEUA, Watermaster, or other Implementing Agency
HYD-15: For long-term mitigation of site disturbances at OBMPU facility locations, all areas not covered by structures shall be covered with hardscape (concrete, asphalt, gravel, etc.), native vegetation and/or man-made landscape areas (for example, grass). Revegetated or landscaped areas shall provide sufficient cover to ensure that, after a two-year period, erosion will not occur from concentrated flows (rills, gully, etc.) and sediment transport will be minimal as part of sheet flows. These measures and requirements shall be applied to disturbed areas of abandoned well sites proposed for closure.	IEUA, Watermaster, or other Implementing Agency
HYD-16: Prior to implementation of any recharge or stormwater retention basin projects as either existing or new basins, a management plan will be established to the satisfaction of SBCFCD, Riverside County Flood Control District and Water Conservation District (RCFCDWCD). This plan shall be created specifically for each individual basin to ensure the safety of surrounding property and people from undue risks associated with water-related hazards (i.e. flooding). The management plan will firmly establish a priority of flood-control functions over and above recharge or retention-related operations. Weather forecasts of upcoming storm events will be carefully monitored and in the event of a significant forecasted storm-event, water deliveries the basins will be ceased until further notice is received from SBCFCD or RCFCDWCD that it is safe for deliveries to resume. Additionally, each SBCFCD or RCFCDWCD basin will have a specific management plan developed, so as to coordinate flood control with surface water recharge or retention. This mitigation measure will ensure that people and property are not subject to additional risk associated with water-related hazards in the Basin, and will allow SBCFCD or RCFCDWCD to make full utilization of the basin's flood control capacity in the event of a storm.	IEUA, Watermaster, or other Implementing Agency

Environmental Category / Avoidance, Minimization and Mitigation Measures	Responsible Agency
HYD-17: Prior to cleaning out, refurbishing or capping a well, samples will be obtained and chemically analyzed to ensure that the discharge does not contain any contaminants exceeding regulatory thresholds. If contaminants are discovered, then they shall be removed or lowered below the regulatory threshold prior to discharge to the environment. Discharge of non-stormwater into storm drains will require a NPDES permit.	IEUA, Watermaster, or other Implementing Agency
HYD-18: All new and expanded water treatment facilities associated with the OBMPU shall ensure that any brine generated from the water treatment process that cannot be otherwise treated on-site is disposed of in accordance with state and local regulations—such as through disposal to a brine line (Non-Reclaimable Wastewater System, Etiwanda Wastewater Line, and Inland Empire Brine Line, etc.)—to prevent brine from being discharged into the local stormwater collection system.	IEUA, Watermaster, or other Implementing Agency
HYD-19: The Watermaster and/or Implementing Agency shall verify that any given OBMPU facility (excepting those located at existing facilities [wells, water treatment plants, etc.] and excepting the installation of in-line flow meters or other facilities required to be installed in a channel, such as diversion structures) is located outside of the 100-year floodplain by utilizing the FEMA FIRM panels for the selected area prior to project implementation. If a given project is located outside of the 100-year floodplain, then no subsequent CEQA documentation specific to floodplains are required. However, if a project is located within the 100-year floodplain either (1) a new location outside of the 100-year floodplain shall be selected, or (2) a second tier CEQA evaluation shall be completed that would address the given project's location within the 100-year floodplain.	IEUA, Watermaster, or other Implementing Agency

Impact Description	Impact After Mitigation
As described in Subchapter 4.7, the overall hydrology (watershed, drainage and flood hazards) and water quality impacts that would result from implementation of the OBMPU could be significant without the implementation of substantive mitigation measures. As such, several mitigation measures were identified to minimize impacts related to hydrology and water quality.	Mitigation measures required to reduce hydrology and water quality impacts would: ensure that Watermaster gathers the appropriate data to (1) determine whether future OBMPU projects would result in loss of pumping sustainability, result in potential reduction in net recharge and impacts to Safe Yield, result in new subsidence, result in potential adverse impacts to Hydraulic Control, or result in potential degradation of water quality, and (2) respond with appropriate mitigation to minimize the potential adverse hydrological impacts that may occur from a Project or, where mitigation is not feasible, reject the Project; address addresses the plan of response by Watermaster should the Basin conditions to vary from the projections that have been modeled as part of the OBMPU (and all supporting documentation); would require implementation of BMPs for projects of less than one acre in size that would be comparable to the requirements of the Construction General Permit and Stormwater Pollution Prevention Plan, which are required for larger projects; ensure that drainage is managed through either runoff collection or development of a drainage plan for a given OBMPU Project; require OBMPU projects at existing well sites to remain within disturbed areas wherever feasible to minimize the potential for further ground disturbance at these sites; require all disturbed areas that are not covered in hardscape or vegetation would be revegetated or landscaped at future OBMPU facility sites; ensure that a management plan for each storage or recharge basin is established to ensure the safety of surrounding property and people from undue risks

Environmental Category / Avoidance, Minimization and Mitigation Measures		Responsible Agency
	associated with water-related hazards such as flooding; ensure that significant polluted runoff does not occur from contaminated discharge that may result from refurbishing or capping a well; and, ensure that brine generated by water treatment systems would be disposed of in a manner that would minimize the potential for release of polluted runoff. Therefore, though there will be some adverse impacts as a result of implementing the Project, specific mitigation measures have been identified to reduce potential Project specific and cumulative (direct and indirect) effects to a less than significant impact level for hydrology and water quality issues. Thus, the Project is not forecast to cause any unavoidable significant adverse hydrology and water quality impacts.	

Environmental Category /Avoidance, Minimization and Mitigation Measures		Responsible Agency
TRIBAL CULTURAL RESOURCES		
TCR-1	Where a future discretionary project requiring a Negative Declaration or follow-on EIR is proposed within an existing facility that has been totally disturbed due to it undergoing past engineered site preparation (such as a well site, water treatment facility, or wastewater treatment plant site), the agency implementing the OBMPU project will notify the three Tribes under AB 52 but will point out that the project falls under the OBMPU evaluation and that the site is fully developed. No further cultural resources or TCR investigation will be conducted unless a Tribe identifies specific TCR resources/values at such site(s).	IEUA, Watermaster, or other Implementing Agency
TCR-2	Where a future discretionary project requiring a Negative Declaration or follow-on EIR is proposed at an undisturbed site, the agency implementing the OBMPU project will initiate AB 52 consultation and a records search at the appropriate California Historical Resources Information System (CHRIS) center with at least a 0.5-mile search radius. The Native American Heritage Commission (NAHC) shall also be contacted to identify tribal representatives to contact as part of a Phase 1 cultural resources investigation. Finally, a site-specific survey will be conducted by a qualified professional archaeologist. During the survey, the archaeologist shall engage the designated tribal representative(s) based on responses from the NAHC consultation among the three Tribes.	IEUA, Watermaster, or other Implementing Agency
TCR-3	If the AB 52 consultation results in a request to consult from one or more of the three Tribes, and the consultation results in a request for monitoring from one or more of the Tribes, the agency implementing the OBMPU project shall meet with the Tribe or Tribes and develop a "Cultural Resources Monitoring and Treatment Plan" (Plan) for the specific project. This Plan shall follow the general outline of the Plan provided in Appendix ?? of this document. If more than one Tribe requests field monitoring participation, the agency shall ask the requesting Tribes to determine which one will provide the monitor(s), as only a single Tribe's monitor(s) shall be funded in the monitoring effort. If the Tribes cannot identify a single tribal monitor, the agency shall select a single tribal monitor to monitor a project after reviewing qualifications of the recommended monitors. Monitoring activities and follow-on management of any discovered tribal cultural resources shall conducted be in accordance with the Cultural Resources Monitoring and Treatment Plan agreed upon for the specific project and specific project site.	IEUA, Watermaster, or other Implementing Agency

Impact Description	Impact After Mitigation
As described in Subchapter 4.8 of this DSEIR, the San Manuel Band of Mission Indians, Gabrieleño Band of Mission Indians - Kizh Nation, and Morongo Band of Mission Indians requested continued participation with this project's CEQA process and future project implemented under the OBMPU. Concerns expressed include the following: accidental exposure of subsurface cultural resources and proper management of such resources; concerns over exposure of human remains and proper management; and presence of Native American monitors during future ground disturbing activities. Through incorporation of mitigation measures, impacts to Tribal Cultural Resources are considered less that significant.	The mitigation measures provide a hierarchy from which to approach future OBMPU Projects, involving (1) notification to the three tribes at project sites that have been totally disturbed; (2) at undisturbed project sites, AB 52 consultation will be initiated and a records search shall be performed as part of a site specific Phase I evaluation, and the site shall be surveyed; and, (3) development of a Cultural Resources Monitoring and Treatment Plan which may require monitoring and treatment of any resources located within a given site. Thus, with implementation of mitigation to protect tribal cultural resources, the Project would not cause significant unavoidable adverse impacts to tribal cultural resources.

Environmental Category /Avoidance, Minimization and Mitigation Measures	Responsible Agency
UTILITIES AND SERVICE SYSTEMS UTIL-1 Future OBMPU Projects that do not have access to electrical or natural gas connections in the immediate vicinity (defined here as a 500-foot buffer from a given project site), and will require either extension of infrastructure or creation of new infrastructure to meet electricity and/or natural gas needs at a future OBMPU Facility site, subsequent CEQA documentation shall be prepared that fully analyzes the impacts that would result from extension or development of energy or natural gas infrastructure.	IEUA, Watermaster, or other Implementing Agency

Impact Description	Impact After Mitigation
Section XVIII of the IS concluded that implementation of the OBMPU would not significantly impact wastewater, stormwater drainage, telecommunications, or solid waste. Mitigation is required to minimize impacts related to wastewater, stormwater drainage, and solid waste. Additionally, In Subchapter 4.9, the construction of infrastructure related to energy and natural gas was analyzed and determined to be less than significant with the implementation of mitigation. The topic of water was also discussed in Subchapter 4.9, and while the extension of water related infrastructure was determined to be significant, the provision of sufficient water supply within the Chino Basin was determined to be less than significant. Mitigation is required to minimize impacts thereof. However, as discussed under Subchapter 4.9 of this DSEIR, the proposed OBMPU would result in significant impacts related to the construction-related GHG emissions that would result from the extension of water-related infrastructure. As such, through mitigation measures identified that would reduce GHG emissions, the proposed OBMPU would result in significant and unavoidable impacts related to construction or new or expansion or modifications to existing water facilities.	Mitigation is required to minimize impacts related the extension of wastewater and brine conveyance associated with the proposed project through requirement of subsequent CEQA documentation for water treatment facilities. Additionally, mitigation is required to minimize impacts related to stormwater through implementation of a drainage plan to reduce downstream flows for future OBMPU projects. Mitigation is required to address potential impacts related to solid waste including those that would: ensure that construction and demolition materials that are salvageable are recycled, and thereby diverted from the local landfill, which will minimize the potential for OBMPU projects to generate waste in excess of local landfill capacities; and, ensure that soils that would generally be exported from a given construction site are salvaged where possible for recycled and ultimately reuse, thereby diverting this waste stream from the local landfill. Based on the facts and findings presented in the above analysis, the proposed Project will not cause unavoidable significant adverse impacts to wastewater, stormwater drainage, telecommunications, or solid waste. Energy and natural gas related mitigation would ensure that OBMPU projects not located in an area containing electricity and natural gas infrastructure would require subsequent CEQA documentation. With implementation of this

Environmental Category /Avoidance, Minimization and Mitigation Measures		Responsible Agency
	mitigation the proposed Project will not cause unavoidable significant adverse impacts to energy or natural gas. The topic of water was also discussed in Subchapter 4.9, mitigation is required to minimize impacts related to pumping sustainability, net recharge and safe yield, hydraulic control, and overall basin management. These mitigation measures will ensure that sufficient water supplies are available to serve the Parties within the Chino Basin. The mitigation is extracted from Subchapter 4.7, Hydrology and Water Quality (discussed above) and would create a hierarchy of checks and balances as part of the sustainable management of the Basin through continuous monitoring of known issues within the Basin and a comparable mitigative response to ensure that these issues do not result in a significant impact. However, as discussed under Subchapter 4.9 of this DSEIR, the proposed OBMPU would result in significant impacts related to the construction-related GHG emissions that would result from the extension of water-related infrastructure. As such, through mitigation measures identified under Air Quality would reduce emissions from construction equipment, and would ensure minimization of fugitive dust during construction of OBMPU related facilities, construction-related greenhouse gas emissions exceed the SCAQMD screening thresholds of 3,000 $MTCO_2e$ and 10,000 $MTCO_2e$, and therefore the proposed OBMPU would result in significant and unavoidable impacts related to construction or new or expansion or modifications to existing water facilities.	

Table 1.6-1
TABULAR COMPARISON OF PROJECT ALTERNATIVES

	Would the Project/Alternative Result in Significant Adverse Impacts to the Resource Issues of …?		**Would the No Project/Baseline Alternative have Greater or Lesser Environmental Impacts than the OBMPU?**
	Proposed Project	**No Project/Baseline Alternative**	
Aesthetics	No	No	Lesser
Agricultural	No	No	Lesser
Air Quality	No	No	Lesser
Biological Resources	Yes	Yes	Lesser
Cultural Resources	No	No	Lesser
Geology and Soils	No	No	Lesser
Greenhouse Gas	Yes	Yes	Lesser
Hazards and Hazardous Materials	No	No	Lesser
Hydrology and Water Quality	No	Yes	Greater environmental impacts
Land Use / Planning	No	No	Lesser
Mineral Resources	No	No	Lesser
Noise	No	No	Lesser
Population / Housing	No	No	Lesser
Public Services	No	No	Lesser
Recreation	No	No	Lesser
Transportation / Traffic	No	No	Lesser
Utilities and Service Systems	Yes	Yes	Greater environmental impacts
Would Meet Project Objectives?	Yes	No	-

CHAPTER 2 – INTRODUCTION

2.1 BACKGROUND

The Inland Empire Utilities Agency (IEUA or Agency) serves as a wholesale imported water distributor for the Chino Groundwater Basin (Chino Basin), provides industrial/municipal wastewater collection and treatment and other related utility services for the western portion of the Santa Ana River watershed in the southwestern-most portion of San Bernardino County. Current services provided or programs supported by IEUA also include: production of recycled water; sewage collection and treatment; distribution of imported and recycled water supplies; co-composting of manure and municipal biosolids; desalinization of groundwater supplies; renewable energy generation; and disposal of non-reclaimable industrial wastewater and brine.

The Optimum Basin Management Program (OBMP) is a regional water resources and groundwater management program for the Chino Basin. The location of the Chino Basin is shown in Exhibit 1. On January 2, 1975, several Chino Basin groundwater producers filed suit in the California State Superior Court for San Bernardino County (Court) to settle the problem of allocating water rights in the Chino Basin. On January 27, 1978, the Court entered a judgment in “Chino Basin Municipal Water District v. City of Chino et. al.” (Judgment). The Judgment adjudicated the groundwater rights of the Chino Basin, established the Chino Basin Watermaster (Watermaster or CBWM)—a Court created entity—to administer the Judgment, and contains a Physical Solution to meet the requirements of water users having rights in or dependent upon the Chino Basin. Exhibit 2 shows the adjudicated boundary as it is legally defined in the Judgment, the hydrologic boundary, the Chino Basin management zones, and the groundwater management zones defined by the Santa Ana Regional Water Quality Control Board (Regional Board) in the Water Quality Control Plan for the Santa Ana River Basin (Basin Plan).

Because the CBWM is not considered a public agency, and the IEUA has jurisdiction throughout most of the Chino Basin, it has agreed to serve as the Lead Agency for purposes of complying with the California Environmental Quality Act (CEQA). Actual implementation of the OBMPU activities—outlined in Chapter 3: Project Description—may be carried out by the CBWM or any of its member agencies/stakeholders in the Chino Basin through the planning period, 2020 through 2050.

The Chino Basin Watermaster functions as a unique entity that has been created by the court as outlined above. The Watermaster is composed of a Board that consists of member agencies from three groups: an Appropriative Pool, Non-Appropriative Pool, and Agricultural Pool, and four other public agencies (see below), effectively the water producers in the Chino Basin. Please refer to Appendix 1 for a list of all Appropriative Pool, Non-Appropriative Pool, and Agricultural Pool participants. These member agencies are henceforth referred to as either “stakeholders” or “the parties.”

Watermaster, at the direction of the Court, began developing the OBMP in 1998 and completed it in July 2000. The OBMP was developed in a collaborative public process that identified the needs and wants of all stakeholders, described the physical state of the groundwater basin (as understood at that time), defined a set of management goals, characterized impediments to those goals, and developed a series of actions that could be taken to remove the impediments and achieve the management goals. The Parties entered into the Peace I Agreement in June 2000. In July 2000, the IEUA certified a Program Environmental Impact Report (PEIR) for the OBMP, which was based on the Peace I Agreement between stakeholders in the Chino Groundwater Basin.

In the years following the certification of the PEIR for the OBMP, the work to develop the OBMP determined that the groundwater production of the Chino Basin Desalters would ultimately need to be 40,000 acre-feet per year (afy) to accomplish the goals of the OBMP. The Parties developed the Peace II Agreement, approved by the Court on December 21, 2007, which redefined the future programs and actions required to implement the OBMP by introducing Re-operation[1] to achieve Hydraulic Control[2] of the Chino Basin and maintain Safe Yield. The IEUA Board certified a supplemental environmental impact report (SEIR) for the Peace II Agreement in 2010.

In 2016, Watermaster identified the need to update the storage management plan in the OBMP Implementation Plan because the total amount of water in managed storage accounts was projected to exceed the Safe Storage Capacity (SSC) limit of 500,000 af originally defined in the 2000 OBMP. In 2017, the IEUA adopted an addendum to the SEIR to provide a "temporary increase in the Safe Storage Capacity from 500,000 af to 600,000 af for the period of July 1, 2017 through June 30, 2021 […] until a comprehensive re-evaluation of the Safe Storage Capacity value/concept can be completed before June 30, 2021."[3] (IEUA Addendum to 2000 OBMP PEIR)

The 2000 OBMP contains a set of management programs (the Program Elements, PEs) that improve the reliability and long-term sustainability of the Chino Basin and the water supply reliability of the Judgment Parties. The framework for developing the OBMP was all based on 1998-1999 conditions and valid planning assumptions at that time. As of 2020, many of the projects and management programs envisioned in the 2000 OBMP have been and continue to be implemented; though some have not. The understanding of the hydrology and hydrogeology of the Chino Basin has substantially improved since 2000, and new water-management issues have been identified as understanding of the Basin has expanded. The strategic drivers and trends that shaped the goals and implementation actions of the OBMP in the late 1990s have since evolved. And, there are several drivers and trends in today's water management space that may challenge the ability of the Parties to protect their collective interests in the Chino Basin and their water supply reliability. These are depicted in Exhibit 3.

The OBMPU's scope is, of necessity, expansive, as it covers the nine (9) Program Elements (PEs) that make up the original OBMP, and which were analyzed in the 2000 Program Environmental Impact Report (2000 PEIR). The OBMPU is intended to address possible program activities and projects at a programmatic level over the next 30 years, with some site-specific detail where near-term future locations of facilities or types of activities are known. The CBWM and stakeholders have worked to define the scope, purpose and goals of the OBMPU over the past two years. The stakeholders concluded that the goals of the 2020 OBMP Update (OBMPU) are identical to the 2000 OBMP goals. The goals and their intents for the OBMPU include:

Goal No. 1 - Enhance Basin Water Supplies. The intent of this goal is to increase the water supplies available for Chino Basin Parties and improve water supply reliability. This

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[1] Re-operation is the controlled overdraft of the basin by the managed withdrawal of groundwater pumping for the Chino Basin Desalters and the potential increase in the cumulative un-replenished pumping from the 200,000 acre-feet authorized by paragraph 3 of the Engineering Appendix Exhibit I to the Judgment, to 600,000 acre-feet for the express purpose of securing and maintaining Hydraulic Control as a component of the Physical Solution.

[2] Hydraulic Control is the elimination of groundwater discharge from the Chino-North Groundwater Management Zone to the Santa Ana River or its reduction to less than 1,000 afy.

[3] Tom Dodson & Associates. (2017). *Addendum No. 1 to the Optimum Basin Management Program Project*. Page 2.

goal applies to Chino Basin groundwater and all other sources of water available for beneficial use.

Goal No.2 - Protect and Enhance Water Quality. The intent of this goal is to ensure the protection of the long-term beneficial uses of Chino Basin groundwater.

Goal No.3 - Enhance Management of the Basin. The intent of this goal is to encourage sustainable management of the Chino Basin to avoid Material Physical Injury, promote local control, and improve water-supply reliability for the benefit of all Chino Basin Parties.

Goal No. 4 - Equitably Finance the OBMP. The intent of this goal is to identify and use efficient and equitable methods to fund OBMP implementation.

The CBWM and parties/stakeholders of the OBMPU and regulatory agencies that will function as CEQA Responsible Agencies will have the option of relying upon this CEQA document for any future actions they take in support of the proposed program or an individual project described in this environmental document.

Based on the findings of the Notice of Preparation (NOP), IEUA and Watermaster concluded that an Environmental Impact Report (EIR) should be prepared to address the potential impacts from proposed Project focused on the following issues: Air Quality, Biological Resources, Cultural Resources, Energy, Greenhouse Gas, Hydrology and Water Quality, Tribal Cultural Resources, and Utilities and Service Systems. The decision to prepare an EIR was based on the finding that the proposed Project may have one or more significant effects on the existing Project environment and surrounding environment as is documented in the NOP, provided as Subchapter 8.1 of this document.

Watermaster has prepared the Optimum Basin Management Program Draft Subsequent Environmental Impact Report (DSEIR or Draft SEIR) that evaluates the potential broad scope or programmatic environmental impacts that would result from constructing and implementing the proposed Project.

2.2 PURPOSE AND USE OF AN EIR

CEQA was adopted to assist with the goal of maintaining the quality of the environment for the people of the State. Compliance with CEQA, and its implementing guidelines, requires that an agency making a decision on a project (defined as an action that can change the physical environment) must consider its potential environmental effects/impacts before granting any approvals or entitlements. Further, the State adopted a policy "that public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects." Thus, an agency, in this case IEUA, must examine feasible alternatives and identify feasible mitigation measures as part of the environmental review process. CEQA also states "that in the event specific economic, social, or other conditions make infeasible such project alternatives or such mitigation measures, individual projects may be approved in spite of one or more significant effects thereof." (§21002, Public Resources Code)

When applied to a specific project, such as the proposed Optimum Basin Management Program Update, the reviewing agency is required to identify the potential environmental impacts of implementing the project; and, where potential significant impacts are identified, must determine whether there are feasible mitigation measures or alternatives that can be implemented to avoid or substantially lessen significant environmental effects of a project. The first step in this process—determination that an EIR is required and issuance of a NOP—has been completed for the OBMPU. This constitutes the "project being considered for approval and implementation" by IEUA on behalf of Watermaster. Based on the information in the NOP, IEUA concluded an EIR should be prepared to address any potential significant impacts that may result from implementation of the proposed Project.

As stated above, the following environmental issues will be analyzed in this EIR: Air Quality, Biological Resources, Cultural Resources, Energy, Greenhouse Gases/Climate Change, Hydrology and Water Quality, Tribal Cultural Systems, and parts of Utilities and Service Systems. The NOP concluded that the following issues have been determined to be less than significant either with or without mitigation incorporated by the Initial Study prepared for the Project, which was included as an attachment to the NOP: Aesthetics, Agriculture and Forestry Resources, Geology and Soils, Hazards and Hazardous Materials, Land Use and Planning, Mineral Resources, Noise, Population and Housing, Public Services, Recreation, Transportation, parts of Utilities and Service Systems, Wildfire.

Watermaster prepared and circulated a Notice of Preparation (NOP) for the Project. The NOP public review period through the State Clearinghouse began on February 10, 2020 and ended on March 10, 2020. Respondents were requested to send their input as to the scope and content of environmental information and issues that should be addressed in the OBMPU DSEIR no later than 30 days after receipt of the NOP. The NOP was distributed to interested agencies, the State Clearinghouse (SCH#2020020183), and a list of interested parties compiled by the Watermaster. IEUA held a Scoping Meeting on February 27, 2020 at 6 p.m. at the Inland Empire Utilities Agency: Agency Headquarters, Board Room located at 6075 Kimball Avenue, Building A, Chino, CA 91708 (provided as Subchapter 8.2 of this DSEIR). The date and location of the scoping meeting was announced in the NOP, and although not required, a legal advertisement announcing the scoping meeting was published in a local newspaper of general circulation prior to the scoping meeting. Five responses were submitted in response to the NOP. No comments were received at the scoping meeting. Comments are summarized below, and a brief response to each issue organized by environmental topic is provided following the summary of comment letters. A copy of each letter is provided in Subchapter 8.3. The location where the issues raised in the comments are addressed is described in the following text.

Comment Letter #1 from Office of Planning and Research (dated 2/15/20) states:

- Acknowledgment letter detailing NOP distribution to State agencies

Comment Letter #2 from Orange County Water District (OCWD) (dated 3/6/20) states:

- OCWD has statutory authority over and extensive activities within Prado Basin.
- The distribution of riparian vegetation and wetlands in the Prado Basin relies on rising groundwater or groundwater seepage as a Groundwater Dependent Ecosystem.
- The OBMPU EIR should evaluate potential effects that the proposed project might have on the Groundwater Dependent Ecosystem in Prado Basin.
- The OBMPU EIR should assess how the proposed projects would change or effect surface flow rates in Chino Creek, Mill Creek, and the Santa Ana River.
- The OBMPU EIR should assess how changes in surface water flow rates in these water bodies affect the levels and availability of shallow groundwater in and around Prado Basin.

- The OBMPU EIR should assess the effects that OBMPU related changes in groundwater levels will have on sensitive riparian vegetation and riparian habitats.
- The OBMPU EIR should assess how changes in groundwater pumping, groundwater storage levels, or groundwater overdraft affect the levels and availability of shallow groundwater in and around Prado Basin, and the effects these changes will have on sensitive riparian vegetation and riparian habitats.
- The OBMPU EIR should evaluate potential impacts of increased fire risk, riparian habitat loss, and riparian habitat conversion to non-native plant species that might occur to the proposed OBMPU Projects.
- The OBMPU EIR should provide a quantitative analysis regarding how OBMPU projects would affect Santa Ana River flows reaching Prado Basin.
- The OBMPU EIR should provide a quantitative analysis regarding how OBMPU projects would cumulatively impact Prado Basin habitat and groundwater levels in relation to those projects identified in the habitat conservation plan.

Comment Letter #3 from the California Department of Corrections and Rehabilitation, Facility Planning, Construction and Management (dated 3/10/20):

- This letter acknowledges the decision to prepare and EIR for the OBMPU and commits to reviewing the prospective Draft EIR and continued collaboration with the parties involved in implementing the OBMPU.

Comment Letter #4 from the Department of Water Resources, Division of Safety of Dams (DSOD)(dated 3/3/20) states:

- The DSOD acknowledges the OBMPU includes possible future new surface water basins and improvements to existing basins
- The DSOD seeks additional information regarding whether these projects may be subject to State jurisdiction for dam safety. DSOD requests submittal of preliminary plans for each project to allow them to conduct reviews.
- DSOD outlines the process for initiating and processing applications with their organization.

Comment #5 e-mail from Katie Gienger, Water Resources Manager for Ontario Municipal Utilities (dated 3/9/20) states:

- The Comment identifies the process for future review of projects that may result in potential changes to surface flows in the Santa Ana River (quality or quantity), particularly in relation to recycled water discharges to the River and means to mitigate potential impacts from such changes. This Comment states that the OBMPU should include discussion of the potential adverse impact to the Santa Ana River from proposed OBMPU future projects.

A brief response to each issue raised is provided below organized by environmental topic.

Aesthetics
No comments specific to this topic were received.

Agriculture and Forestry Resources
No comments specific to this topic were received.

Air Quality
No comments specific to this topic were received

Biological Resources
OCWD requested that the OBMPU quantitatively address how OBMPU projects would cumulatively impact Prado Basin habitat and groundwater levels. (Letter #2).

Response: The impacts related to biological resources have been assessed in the Biological Resources Subchapter of this DSEIR (Subchapter 4.3) and in the Biological Resources Assessment included as Volume 2 of the DSEIR. Mitigation is identified where applicable to address impacts of OBMPU Projects on groundwater levels and potential related habitat impacts.

Cultural Resources
No comments specific to this topic were received.

Energy
No comments specific to this topic were received.

Geology and Soils
No comments specific to this topic were received.

Greenhouse Gases (GHG)
No comments specific to this topic were received

Hazards and Hazardous Materials
The comments supplied by the DSOD relate to hazards associated with water storage facilities that may fall under the jurisdiction of the agency.

Response: Although the issue raised involves review of proposed dams and minimizing any risk that such facilities may pose, no specific facilities are proposed at this time. However, based on the Comments in this letter a mitigation measure has been added to require future agency facility proposals which involve a dam to consult with DSOD and involve them in the review process to ensure safety of such facilities.

Hydrology and Water Quality
The OCWD letter and the e-mail the City of Ontario address both groundwater and surface water effects of implementing the OBMPU, respectively. The OCWD letter requests evaluation of groundwater impacts in the Prado Basin that may translate indirectly to possible effects on Prado Basin biological resources. The e-mail focuses on potential OBMPU impacts on surface water flows in the Santa Ana River and possible indirect effects from any modifications in flow.

Response: Hydrology and water quality are addressed in detail in the Draft SEIR. Regarding groundwater the proposed OBMPU projects are determined to not cause a significant effect with mitigation. The forecast for surface water is both more complex and nuanced because the existing data base and the scope of future impacts is less well defined. Regardless, proposed mitigation combined with the existing Prado Basin Habitat Sustainability Program (PBHSP) are deemed sufficient to reduce or control surface volume impacts to a less than significant impact level. In accordance with Section 15152(c) of the State CEQA Guidelines, the mitigation measure for future surface runoff diversions (BIO-28) requires a follow-on CEQA environmental determination because it is not possible to develop detailed, site-specific information on this issue at this time. Surface diversions at a general level are identified in the OBMPU, but no specific diversions or diversion levels can be authorized by Watermaster or individual stakeholders until a third tier CEQA evaluation is completed in accordance with the State CEQA Guidelines.

Land Use and Planning
No comments specific to this topic were received.

Mineral Resources
No comments specific to this topic were received.

Noise
No comments specific to this topic were received.

Population and Housing
No comments specific to this topic were received.

Public Services
No comments specific to this topic were received.

Recreation
No comments specific to this topic were received.

Transportation and Traffic
No comments specific to this topic were received.

Tribal Cultural Resources
No comments specific to this topic were received.

Utilities and Service Systems
No comments specific to this topic were received.

Wildfire
No comments specific to this topic were received.

A copy of the Notice of Preparation and NOP Distribution list are provided in Subchapter 8.1 of this DSEIR. A copy of the referenced comment letters/comments is also provided in Subchapter 8.3 of this DSEIR.

The OBMPU DSEIR was prepared in order to address all of the issues identified in the NOP as potentially significant and to provide information intended for use by Watermaster and stakeholders, interested and responsible agencies and parties, and the general public in evaluating the potential environmental effects of implementing the proposed Project.

CEQA requires that IEUA, on behalf of Watermaster, consider the environmental information in the Project record, including this DSEIR, prior to making a decision on the proposed Project. IEUA must consider and decide whether to recommend approval of the OBMPU as proposed and described in Chapter 3, Project Description of this DSEIR. IEUA also has the authority to recommend modifications to the Project based on input provided during the public review process for the DSEIR.

As stated above, IEUA will serve as the CEQA Lead Agency pursuant to the CEQA Guidelines Section 15051(b)(1). The OBMPU DSEIR was prepared by Tom Dodson & Associates (TDA). TDA was retained to assist IEUA and Watermaster to perform the independent review of the Project required by CEQA before the OBMPU DSEIR is released. IEUA and Watermaster have reviewed the content of the OBMPU DSEIR and concur in the conclusions and findings contained herein.

2.3 SCOPE AND CONTENT OF THIS EIR

As stated previously, the OBMPU DSEIR evaluates the environmental effects of the proposed Project based on Appendix G of the CEQA Guidelines in the following issue areas: Air Quality, Biological Resources, Cultural Resources, Energy, Greenhouse Gases/Climate Change, Hydrology and Water Quality, Tribal Cultural Systems, and parts of Utilities and Service Systems. The NOP concluded that the remaining issues have been determined to be less than significant either with or without mitigation incorporated within the Initial Study prepared for the Project, which was included as an attachment to the NOP and is provided as Subchapter 8.1 of this DSEIR: Aesthetics, Agriculture and Forestry Resources, Geology and Soils, Hazards and Hazardous Materials, Land Use and Planning, Mineral Resources, Noise, Population and Housing, Public Services, Recreation, Transportation, parts of Utilities and Service Systems, Wildfire.

In addition to evaluating the environmental issues listed above, the OBMPU DSEIR contains all of the sections mandated by the CEQA and CEQA Guidelines. Table 2.3-1 provides a listing of the contents required in an EIR along with a reference to the chapter and page number where these issues can be reviewed in the document. This EIR is contained in two volumes. Volume 1 contains the CEQA mandated sections and some pertinent appendices. Volume 2 contains the technical appendices.

Table 2.3-1
REQUIRED EIR CONTENTS

Required Section (CEQA)	Section in EIR	Page Number
Table of Contents (Section 15122)	same	Ii
Summary (Section 15123)	Chapter 1	1.1
Project Description (Section 15124)	Chapter 3	3.1
Environmental Setting (Section 15125)	Chapter 4	Beginning 4.1
Significant Environmental Effects of Proposed Project (Section 15126a); Environmental Impacts	Chapter 4	Beginning 4.1
Unavoidable Significant Environmental Effects (Section 15126b)	Chapter 4	Beginning 4.1
Mitigation Measures (Section 15126c)	Chapter 4	Beginning 4.1
Cumulative Impacts (Section 15130)	Chapter 4	Beginning 4.1 and 6.2
Alternatives to the Proposed Action (Section 15126d)	Chapter 5	Beginning 5.1
Growth-Inducing Impacts (Section 15126g)	Chapter 6	6.1
Irreversible Environmental Changes (Section 15126f)	Chapter 6	6.1
Effects Found Not to be Significant (Section 15128)	Chapter 2 & 8	2.1
Organizations and Persons Consulted (Section 15129)	Chapter 7	7.1
Appendices	Chapter 8	8.1

2.4 DSEIR FORMAT AND ORGANIZATION

The OBMPU DSEIR contains eight chapters in Volume 1 and a set of technical appendices in Volume 2, which, when considered as a whole, provide the reviewer with an evaluation of the potential significant adverse environmental impacts from implementing the proposed Project. The following paragraphs provide a summary of the content of each chapter of the OBMPU DSEIR.

Chapter 1 contains the Executive Summary for the OBMPU DSEIR. This includes an overview of the proposed Project and a tabular summary of the potential adverse impacts and mitigation measures.

Chapter 2 provides the reviewer with an Introduction to the document. This chapter of the document describes the background of the proposed Project, its purpose, and its organization. The CEQA process to date is summarized and the scope of the OBMPU DSEIR is identified.

Chapter 3 contains the Project Description used to forecast environmental impacts. This chapter describes for the reviewer how the existing environment will be altered by the proposed Project. Chapter 3 sets the stage for conducting the environmental impact forecasts contained in the succeeding several chapters.

Chapter 4 presents the environmental impact forecasts for the issues considered in the OBMPU DSEIR. For each of the environmental issues identified in Section 2.3, the following impact evaluation is provided for the reviewer: the potential impacts forecast to occur if the Project is implemented; proposed mitigation measures; unavoidable adverse impacts; and cumulative impacts.

Chapter 5 contains the evaluation of alternatives to the proposed Project. Included in this section is an analysis of the No Project Alternative and other Project alternatives.

Chapter 6 presents the topical issues that are required in an EIR. These include any significant irreversible environmental changes and growth inducing effects of the proposed Project.

Chapter 7 describes the resources used in preparing OBMPU DSEIR. This includes persons and organizations contacted; list of preparers; and bibliography.

Chapter 8 contains those materials referenced as essential appendices to the OBMPU DSEIR, such as the NOP/Initial Study. Technical Appendices are provided in Volume 2 of the OBMPU DSEIR, under separate cover. All Appendix material is referenced at appropriate locations in the text of the OBMPU DSEIR.

2.5 AVAILABILITY OF THE OPTIMUM BASIN MANAGEMENT PROGRAM UPDATE DSEIR

The OBMPU DSEIR has been distributed directly to all public agencies and interested persons identified in the NOP mailing list (see Subchapter 8.1), the State Clearinghouse, as well as any other requesting agencies or individuals. All reviewers will be provided 45 days to review the OBMPU DSEIR and submit comments to the IEUA for consideration and response. The OBMPU DSEIR is also available for public review at IEUA's website at www.ieua.org/obmpu-ceqa and at the following locations during the 45-day review period:

Inland Empire Utilities Agency
6075 Kimball Avenue
Chino, CA 91708

2.6 REVIEW PROCESS

After receiving comments on the OBMPU DSEIR, IEUA will prepare a Final EIR for certification prior to making a recommendation to the Watermaster regarding approval of the OBMPU. Information concerning the EIR public review schedule and IEUA meetings for this Project can be obtained by contacting Ms. Sylvie Lee, P.E., IEUA. Questions and comments submitted by mail shall be addressed to:

Inland Empire Utilities Agency
6075 Kimball Avenue
Chino, CA 91708
Attn: Ms. Sylvie Lee, P.E.
Phone: (909) 993-1600
Email: slee@ieua.org

Certain components of the Project may be subject to review and approval by other agencies. Implementation of future individual project(s) to support the OBMPU programs may require a variety of approvals from other agency future actions (where required) for which this environmental document may be utilized. The following summarizes those agency approvals that have been identified to date. This list may be expanded as the environmental review proceeds, so it should not be considered exhaustive.

- Future site-specific projects may be enacted by OBMPU Stakeholders. This DSEIR and subsequent environmental documents may be reviewed by each City or Stakeholder (Agency) as part of the review process for future OBMPU related projects.

- California State Water Resources Control Board Division of Finance and Division of Drinking Water (State Board) are responsible for issuing water supply permits and State Revolving Fund (SRF) grants or loans and funds various loan and grant programs for drinking water, recycled water, and wastewater related infrastructure projects. As such, the State Board would be considered a “responsible agency” if IEUA or other stakeholders request any permits and/or funding from State Board for the future OBMPU site specific projects.

- Notice of Intent (NOI) to the State Water Resources Control Board (SWRCB) for a NPDES general construction stormwater discharge permit. This permit is granted by submittal of an NOI to the SWRCB, but is enforced through a Storm Water Pollution Prevention Plan (SWPPP) that identifies construction best management practices (BMPs) for the site. In the project area, the Santa Ana Regional Board enforces the BMP requirements contained in the NPDES permit by ensuring construction activities adequately implement a SWPPP. Implementation of the SWPPP is carried out by the construction contractor under contract to IEUA or a stakeholder agency, with the Regional Board and County providing enforcement oversight.

- The project includes the potential discharge of fill into or alterations of “waters of the United States,” “waters of the State,” and stream beds of the State of California. Regulatory permits to allow fill and/or alteration activities due to project activities such as pipeline installation are likely be required from the Army Corps of Engineers (ACOE), the Regional Board, and California Department of Fish and Wildlife (CDFW) over the life of the OBMPU. A Section 404 permit for the discharge of fill material into “waters of the United States” may be required from the ACOE; a Section 401 Water Quality Certification may be required from the Regional Board; a Report of Waste Discharge may be required from the Regional Board; and a 1600 Streambed Alteration Agreement may be required from the CDFW.

- The U.S. Fish and Wildlife Service (USFWS) and/or CDFW may need to be consulted regarding threatened and endangered species documented to occur within an area of potential direct or indirect impact for future individual projects. This could include consultations under the Fish and Wildlife Coordination Act.

- Land use permits may be required from local jurisdictions, such as individual cities and the two counties (Riverside and San Bernardino).

- Air quality permits may be required from the South Coast Air Quality Management District (SCAQMD).

- Encroachment permits may be required from local jurisdictions, such as individual cities, California Department of Transportation (Caltrans), the two counties (Riverside and San Bernardino), flood control agencies, and private parties such as Southern California Edison, The Gas Company, or others such as the Union Pacific Railway Company.

- Watermaster has a separate approval process for determining material physical injury to the stakeholders within the Chino Basin.

This is considered to be a partial list of other permitting agencies for future OBMPU future individual projects.

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CHAPTER 3 – PROJECT DESCRIPTION

All exhibits are located at the end of this chapter, not immediately following their reference in the text.

3.1 INTRODUCTION

This chapter contains a detailed description of the proposed project, the Optimum Basin Management Program Update (OBMPU), with focus on those program characteristics and activities that have the potential to cause a direct physical change in the environment, or a reasonably foreseeable indirect physical change to the environment. This project description focuses on the relationship between OBMPU Program Elements and activities and facilities proposed by the overall OBMPU programs that may be implemented if the proposed program is approved by the Chino Basin Watermaster (CBWM or Watermaster). However, because the CBWM is not considered a public agency, and the Inland Empire Utilities Agency (IEUA) has jurisdiction throughout most of the Chino Basin, it has agreed to serve as the Lead Agency for purposes of complying with the California Environmental Quality Act (CEQA). Actual implementation of the OBMPU activities described herein may be carried out by the CBWM or any of its member agencies/stakeholders in the Chino Groundwater Basin (Chino Basin) through the planning period, 2020 through 2050.

The description of the OBMPU's scope in this document is of necessity expansive as it covers the nine (9) Program Elements (PEs) that make up the original OBMP, and which were analyzed in a 2000 Program Environmental Impact Report (2000 PEIR). The OBMPU is intended to address possible program activities and projects at a programmatic level over the next 30 years, with some site-specific detail where near-term future locations of facilities are known. The CBWM and stakeholders have been meeting to review Program Elements and define potential project activities and facilities for about the past two years. The CBWM and parties/stakeholders of the OBMPU and regulatory agencies that will function as CEQA Responsible Agencies will have the option of relying upon this CEQA document for any future actions they take in support of the proposed program or an individual project described in this environmental document.

In conjunction with this project description, CBWM and IEUA have authorized the preparation of a detailed Initial Study (attached) to determine whether the OBMPU, as defined below, has the potential to cause any significant adverse environmental impacts. Based on the findings in this Initial Study, a decision has been made to circulate this Initial Study which recommends that a focused Program Environmental Impact Report (PEIR) be prepared to address environmental issues that may result in potentially significant adverse environmental impacts.

The OBMPU and its associated activities are so interrelated that they merit consideration under a single CEQA document. CBWM and IEUA are in the unique position to evaluate implementation of the OBMPU on behalf of the Chino Basin as they integrate management of water supply, wastewater and groundwater management over the next 30 years and derive important benefits through cooperation with all other water management agencies and stakeholders in the Chino Basin.

This current environmental review is the most recent in a series of environmental documents that began in 1999-2000 when the original OBMP PEIR was published and certified. These documents include the following:

- *Final Program Environmental Impact Report for the Optimum Basin Management Program* (SCH#200041047), July 2000 prepared by Tom Dodson & Associates (2000 OBMP PEIR)
- *Final Program Environmental Impact Report for the Wastewater Facilities Master Plan, Recycled Water Master Plan, Organics Management Master Plan* (SCH#2002011116), June 2002 prepared by Tom Dodson & Associates
- *Final Subsequent Environmental Impact Report for Inland Empire Utilities Agency Peace II Project* (SCH#2000041047), September 2010 prepared by Tom Dodson & Associates (2010 Peace II SEIR)
- *IEUA Facilities Master Plan Final Environmental Impact Report* (SCH#2016061064), February 2017 prepared by ESA (2017 FMP EIR)
- *IEUA Addendum to 2000 OBMP PEIR*, March 2017 prepared by Tom Dodson & Associates (2017 OBMP Addendum)

These documents were prepared to address planned water, wastewater, biosolids, and recycled water management activities in the Chino Basin as called for by the OBMP's Program Elements, originally analyzed in the 2000 OBMP PEIR. Each document addresses changes in management activities at different times over the past 20 years and each document provides an important update of environmental conditions and management activity impact forecasts on the environment that constitutes a fundamental building block of support for local agencies when seeking funding from state or federal agencies that provide grants or loans to implement the facilities required to meet the then current management objectives/requirements within the Chino Basin. Some examples of such facilities already implemented and supported by previous environmental documents include the Chino Basin desalters, recharge basin utilization, pipelines to convey water from points of origin to points of use, and aquifer storage and recovery wells.

The OBMPU is being analyzed in this updated environmental document for several reasons:

1. First, while the OBMP goals have been partially achieved, the understanding of the hydrology and hydrogeology of the Chino Basin has substantially improved since 2000. This understanding opens up opportunities to revise the OBMP for the benefit of the Chino Basin parties.
2. Second, updated programs, such as the Updated Storage Management Plan, have been identified that will affect most of the OBMP Program Elements (described in detail in the following text).
3. Third, there are new water management issues have been identified that necessitate adapting the OBMP to protect the collective interests of the Chino Basin parties and their water supply reliability. Specific examples include: adaptation to climate change (including future drought conditions); focused management activities to address salt balance in the Chino Basin; and the emergence of environmental management issues affecting the whole of the Upper Santa Ana River Watershed.
4. State and federal agencies that provide funding for water management projects typically want to have an environmental document that contains a current environmental data base. The OBMPU environmental document will establish an appropriate environmental baseline for both new and revised facilities for the near future. The most recent Basin-wide water management environmental document is now 10 years old (Peace II, 2010) and no longer contains a current environmental baseline.

3.2 PROJECT LOCATION

The Chino Basin is one of the largest groundwater basins in Southern California and has an unused storage capacity of over 1,000,000 acre-feet. The Chino Basin covers approximately 235 square miles within the Upper Santa Ana River Watershed and lies within portions of San Bernardino, Riverside, and Los Angeles counties. Exhibit 1 shows the location of the Chino Basin within the Upper Santa Ana River Watershed. The Chino Basin consists of an alluvial valley that is relatively flat from east to west, sloping from north to south at a one to two percent grade. Basin elevation ranges from about 2,000 feet adjacent to the San Gabriel foothills to about 500 feet near Prado Dam. As shown in Exhibit 2, the Chino Basin is bounded:

- on the north by the San Gabriel Mountains and the Cucamonga Basin;
- on the east by the Rialto-Colton Basin, Jurupa Hills, and the Pedley Hills;
- on the south by the La Sierra Hills and the Temescal Basin; and
- on the west by the Chino Hills, Puente Hills, and the Spadra, Pomona, and Claremont Basins.

The 2000 Optimum Basin Management Program (OBMP), focused on management actions within the Chino Groundwater Basin (Chino Basin or the Basin) as shown on the inset on Exhibit 1. Exhibit 2 illustrates the boundary of the Chino Basin as it is legally defined in the stipulated Judgment in the case of Chino Basin Municipal Water District *vs.* the City of Chino *et al.* Exhibit 2 also shows the Regional Water Quality Control Board, Santa Ana Region (Regional Board) management zones as established in the Water Quality Control Plan for the Santa Ana River Basin (Basin Plan).

The principal drainage course for the Santa Ana River watershed is the Santa Ana River. It flows 69 miles across the Santa Ana Watershed from its origin in the eastern San Bernardino Mountains to the Pacific Ocean. The Santa Ana River enters the Chino Basin at the Riverside Narrows and flows along the southern boundary to the Prado Flood Control Reservoir, where it is eventually discharged through the outlet at Prado Dam and flows the remainder of its course to the Pacific Ocean. The Basin is traversed by a series of ephemeral and perennial streams that include: San Antonio Creek, Chino Creek, Cucamonga Creek, Deer Creek, Day Creek, Etiwanda Creek and San Sevaine Creek. Please refer to Exhibit 2 for the location of drainages.

These creeks flow primarily north to south and carry significant natural flows only during, and for a short time after, the passage of Pacific storm fronts that typically occur from November through April. IEUA discharges year-round flows to Chino Creek and to Cucamonga Channel from its Regional Plants. The actual volume of wastewater discharges varies seasonally and is expected to attenuated in the future by a combination of water conservation measures being implemented by water users and through diversion of flows for delivery as recycled water to future users that can utilize this source of water, including landscape irrigation, industrial operations, and recharge into the Chino Basin groundwater aquifer.

The Chino Basin is mapped within the USGS – Corona North, Cucamonga Peak, Devore, Fontana, Guasti, Mount Baldy, Ontario, Prado Dam, Riverside West and San Dimas Quadrangles, 7.5 Minute Series topographic maps. The center of the Basin is located near the intersection of Haven Avenue and Mission Boulevard at Longitude 34.038040N, and Latitude 117.575954W.

3.3 PROJECT PURPOSE AND OBJECTIVES

The *2020 Optimum Basin Management Program Update Report* (2020 OBMP Update Report), released in July 2019 by CBWM, documents the stakeholder process that was used to update the OBMP and it describes the 2020 OBMP Management Plan. The management plan forms the basis for the 2020 OBMP Implementation Plan Update. Through this process, the stakeholders concluded that the goals of the 2020 OBMP Update should be identical to the 2000 OBMP goals.

Accordingly, the 2020 OBMPU's goals remain the same as the 2000 OBMP's goals:

> ***Goal No. 1 - Enhance Basin Water Supplies.*** The intent of this goal is to increase the water supplies available for Chino Basin Parties and improve water supply reliability. This goal applies to Chino Basin groundwater and all other sources of water available for beneficial use.
>
> ***Goal No.2 - Protect and Enhance Water Quality.*** The intent of this goal is to ensure the protection of the long-term beneficial uses of Chino Basin groundwater.
>
> ***Goal No.3 - Enhance Management of the Basin.*** The intent of this goal is to encourage sustainable management of the Chino Basin to avoid Material Physical Injury, promote local control, and improve water-supply reliability for the benefit of all Chino Basin Parties.
>
> ***Goal No. 4 - Equitably Finance the OBMP***. The intent of this goal is to identify and use efficient and equitable methods to fund OBMP implementation.

3.4 PROJECT CHARACTERISTICS (Original OBMP, OBMP Implementation to Date, and OBMPU Program Elements)

3.4.1 Introduction

The Optimum Basin Management Program (OBMP) is a regional water resources and groundwater management program for the Chino Basin. The location of the Chino Basin is shown in Exhibit 1. On January 2, 1975, several Chino Basin groundwater producers filed suit in the California State Superior Court for San Bernardino County (Court) to settle the problem of allocating water rights in the Chino Basin. On January 27, 1978, the Court entered a judgment in "Chino Basin Municipal Water District v. City of Chino et. al." (Judgment). The Judgment adjudicated the groundwater rights of the Chino Basin, established the Watermaster--a Court created entity—to administer the Judgment, and contains a Physical Solution to meet the requirements of water users having rights in or dependent upon the Chino Basin. Exhibit 2 shows the adjudicated boundary as it is legally defined in the Judgment, the hydrologic boundary, the Chino Basin management zones, and the groundwater management zones defined by the Santa Ana Regional Water Quality Control Board (Regional Board) in the Water Quality Control Plan for the Santa Ana River Basin (Basin Plan).

3.4.2 Project Characteristics

Watermaster, at the direction of the Court, began developing the OBMP in 1998 and completed it in July 2000. The OBMP was developed in a collaborative public process that identified the needs and wants of all stakeholders, described the physical state of the groundwater basin, defined a set of management goals, characterized impediments to those goals, and developed a series of actions that could be taken to remove the impediments and achieve the management goals. This work was documented in the *Optimum Basin Management Program – Phase I Report* (OBMP Phase 1 Report).[1]

The four goals of the 2000 OBMP included:

Goal 1 – Enhance Basin Water Supplies
Goal 2 – Protect and Enhance Water Quality
Goal 3 – Enhance Management of the Basin
Goal 4 – Equitably Finance the OBMP

The actions defined by the stakeholders to remove the impediments to the OBMP goals were logically grouped into sets of coordinated activities called Program Elements (PEs), each of which included a list of implementation actions and an implementation schedule. The nine PEs defined in the 2000 OBMP included:

PE 1 – Develop and Implement Comprehensive Monitoring Program. The objectives of the comprehensive monitoring program are to collect the data necessary to support the implementation of the other eight PEs and periodic updates to the *State of the Basin Report*.[2]

PE 2 – Develop and Implement Comprehensive Recharge Program. The objectives of the comprehensive recharge program include increasing stormwater recharge to offset the recharge lost due to channel lining, to increase Safe Yield, and to ensure that there will be enough supplemental water recharge capacity available to Watermaster to meet its Replenishment Obligations.

PE 3 – Develop and Implement a Water Supply Plan for Impaired Areas. The objective of this program is to maintain and enhance Safe Yield with a groundwater desalting program that is designed to replace declining agricultural groundwater pumping in the southern part of the basin with new pumping to meet increasing municipal water demands in the same area, to minimize groundwater outflow to the Santa Ana River, and to increase Santa Ana River recharge into the basin.

PE 4 – Develop and Implement Comprehensive Groundwater Management Plan for Management Zone 1. The objectives of this land subsidence management program are to characterize the spatial and temporal occurrence of land subsidence, to identify its causes, and, where appropriate, to develop and implement a program to minimize or stop land subsidence.

PE 5 – Develop and Implement Regional Supplemental Water Program. The objective of this program is to improve the regional conveyance and availability of imported and recycled waters throughout the basin.

PE 6 – Develop and Implement Cooperative Programs with the Regional Board and Other Agencies to Improve Basin Management. The objectives of this water quality management program are to identify water quality trends in the basin and the impact of the OBMP implementation on them, to determine whether point and non-point contamination sources are being addressed by water quality regulators, and to collaborate with water-quality regulators to identify and facilitate the cleanup of soil and groundwater contamination.

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[1] WEI. (1999). *Optimum Basin Management Program – Phase I Report*. Prepared for the Chino Basin Watermaster. August 19, 1999. http://www.cbwm.org/docs/engdocs/OBMP%20-%20Phase%20I%20(Revised%20DigDoc).pdf

[2] See for example: WEI (2019). *Optimum Basin Management Program 2018 State of the Basin Report*. Prepared for the Chino Basin Watermaster. June 2018. http://cbwm.org/docs/engdocs/State_of_the_Basin_Reports/SOB%202018/2018%20State%20of%20the%20Basin%20Report.pdf

PE 7 – Develop and Implement Salt Management Plan. The objectives of this salinity management program are to characterize current and future salt and nutrient conditions in the basin and to develop and implement a plan to manage them.
PE 8 – Develop and Implement Groundwater Storage Management Program. The objectives of this storage program are to implement and periodically update a storage management plan that prevents overdraft, protects water quality, and ensures equity among the Parties, and to periodically recalculate Safe Yield. This PE explicitly defined the storage management plan, including a "Safe Storage Capacity" for the managed storage of 500,000 acre-feet (af)–inclusive of Local and Supplemental Storage and Storage and Recovery Programs.

PE 9 – Develop and Implement Storage and Recovery Programs. The objectives of this conjunctive use program are to develop Storage and Recovery Programs that will provide broad mutual benefit to the Parties and ensure that Basin Water and storage capacity are put to maximum beneficial use while causing no Material Physical Injury (MPI).

The PEs and their associated implementation actions (facilities and operations) were incorporated into a recommended management plan. The Parties used the management plan as the basis for developing the OBMP Implementation Plan (which identified specific projects for implementation under the OBMP) and an agreement between the Watermaster parties and stakeholders (the Peace Agreement) to implement it. The OBMP Implementation Plan is Exhibit B to the Peace Agreement. The Peace Agreement was reviewed in the 2000 OBMP PEIR.

The Parties entered into the Peace Agreement in June 2000. Under Resolution 2000-05,[3] Watermaster adopted the goals and plans of the OBMP Phase 1 Report and agreed to proceed in accordance with the Peace Agreement and the OBMP Implementation Plan. Following a July 2000 hearing, the Court directed Watermaster to proceed in a manner consistent with the Peace Agreement in order to implement the OBMP and received and filed the PEIR.

For the purposes of the discussions herein, the term "OBMP" refers to the collective programs implemented by Watermaster and others (e.g. IEUA, Chino Basin Desalter Authority [CDA], etc.) pursuant to the Peace Agreements (see discussion of Peace II below), the OBMP Implementation Plan, the PEIR, and any amendments to these documents.

3.4.2.1 2007 Supplement to the OBMP Implementation Plan and the Peace II Agreement

The work to develop the OBMP determined that the groundwater production of the Chino Basin Desalters (see Section 3.3.4.3) would ultimately need to be 40,000 acre-feet per year (afy) to accomplish the goals of the OBMP. The Chino I Desalter production capacity prior to the Peace Agreement was 8 million gallons per day (mgd; 9,000 afy). The Peace Agreement provided for the expansion of the Chino I Desalter to up to 14 mgd (15,700 afy) and the construction of the Chino II Desalter, with a production capacity of 10 mgd. The Peace Agreement required a minimum combined Desalter production capacity of 20 mgd (22,400 afy) and it committed the Parties to developing expansion and funding plans for the remaining capacity within five years of approval of the Peace Agreement. The Parties developed the Peace II Agreement, which included provisions to expand the desalting capacity such that groundwater production reaches 40,000

[3] Chino Basin Watermaster. (2002). The Resolution approving the OBMP is provided on the Watermaster's website.

afy. The Peace II Agreement introduced Re-operation[4] to achieve Hydraulic Control[5] of the Chino Basin and maintain Safe Yield. Hydraulic Control is both a goal of the OBMP and a requirement of the maximum benefit salt-and-nutrient management plan (maximum benefit SNMP, which is discussed on P. 34) that was developed by Watermaster and the IEUA under PE 7 to enable the expansion of recycled water recharge and reuse throughout the basin under PEs 2 and 5.

The Parties executed the Peace II Agreement in 2007, which included a supplement to the OBMP Implementation Plan to expand the Chino Basin Desalters to 40,000 afy of groundwater pumping, to incorporate Re-operation and Hydraulic Control, and to resolve other issues. There were no changes to the storage management plan in the OBMP Implementation Plan as a result of Peace II.

The IEUA Board certified a supplemental environmental impact report (SEIR) for the Peace II Agreement in 2010 (IEUA Addendum to 2000 OBMP PEIR).

3.4.2.2 2017 Addendum to the OBMP PEIR

In 2016, Watermaster identified the need to update the storage management plan in the OBMP Implementation Plan because the total amount of water in managed storage accounts was projected to exceed the Safe Storage Capacity (SSC) limit of 500,000 af defined in the 2000 OBMP. In 2017, the IEUA adopted an addendum to the SEIR to provide a “temporary increase in the Safe Storage Capacity from 500,000 af to 600,000 af for the period of July 1, 2017 through June 30, 2021 […] until a comprehensive re-evaluation of the Safe Storage Capacity value/concept can be completed before June 30, 2021.”[6] The addendum was supported with engineering work that demonstrated that this temporary increase in SSC would not cause material physical injury (MPI) or loss of Hydraulic Control.

3.4.2.3 Need for the 2020 Optimum Basin Management Program Update (OBMPU)

The 2000 OBMP contains a set of management programs (the PEs) that improve the reliability and long-term sustainability of the Chino Basin and the water supply reliability of the Judgment Parties. The framework for developing the OBMP—including the goals of the Parties, the hydrologic understanding of the basin, the institutional and regulatory environment, an assessment of the impediments to achieving the Parties’ goals, and the actions required to remove the impediments and achieve the goals—were all based on 1998-1999 conditions and valid planning assumptions at that time.

As of 2020, many of the projects and management programs envisioned in the 2000 OBMP have been and continue to be implemented; though some have not. The understanding of the hydrology and hydrogeology of the Chino Basin has improved since 2000, and new water-management issues have been identified. The strategic drivers and trends that shaped the goals and implementation actions of the OBMP in the late 1990s have since changed. And, there are several drivers and trends in today’s water management space that may challenge the ability of the Parties to protect their collective interests in the Chino Basin and their water supply reliability.

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[4] Re-operation is the controlled overdraft of the basin by the managed withdrawal of groundwater pumping for the Chino Basin Desalters and the potential increase in the cumulative un-replenished pumping from the 200,000 acre-feet authorized by paragraph 3 of the Engineering Appendix Exhibit I to the Judgment, to 600,000 acre-feet for the express purpose of securing and maintaining Hydraulic Control as a component of the Physical Solution.

[5] Hydraulic Control is the elimination of groundwater discharge from the Chino-North Groundwater Management Zone to the Santa Ana River or its reduction to less than 1,000 afy.

[6] Tom Dodson & Associates. (2017). *Addendum No. 1 to the Optimum Basin Management Program Project*. Page 2.

Exhibit 3 characterizes the drivers and trends shaping water management and their basin management implications for the Parties. "Drivers" are external forces that cause changes in the Chino Basin water space, such as climate change, regulations, and funding. Grouped under each driver are expected trends that emanate from that driver. For example, trends associated with climate change include reduced groundwater recharge, increased evaporation, and reduced imported water supply. The relationship of the drivers/trends to the management implications are shown by arcs that connect trends to implications. For example, a management implication of reduced groundwater recharge is the reduction of the Chino Basin Safe Yield.

As shown in Exhibit 3, growth is one of the drivers shaping water and basin management. As urban land uses replace agricultural and vacant land uses, the water demands of the Chino Basin Parties are expected to increase. The table below summarizes the actual (2015) and projected water demands, water supply plans, and population through 2040. Total water demand is projected to grow from about 290,000 afy in 2015 to about 420,000 afy by 2040, an increase of about 130,000 afy. The projected growth in water demand through 2040 is driven by the Appropriative Pool Parties, some of which will serve new urban water demands created by the conversion of agricultural and vacant land uses to urban uses.

Table 3.1
AGGREGATE WATER SUPPLY PLAN FOR WATERMASTER PARTIES: 2015 TO 2040[7]

Water source	2015 (Actual)	2020	2025	2030	2035	2040
Volume (af)						
Chino Basin Groundwater	148,467	139,236	144,314	151,525	164,317	173,522
Non-Chino Basin Groundwater	51,398	55,722	61,741	63,299	64,991	66,783
Local Surface Water	8,108	19,653	19,653	19,653	19,653	19,653
Imported Water from Metropolitan	53,784	90,444	97,657	103,684	105,152	111,036
Other Imported Water	8,861	9,484	10,095	10,975	11,000	11,000
Recycled Water for Direct Reuse**	17,554	23,678	24,323	26,910	30,451	33,953
Total	**288,171**	**338,218**	**357,782**	**376,046**	**395,564**	**415,947**
Percentage						
Chino Basin Groundwater	52%	41%	40%	40%	42%	42%
Non-Chino Basin Groundwater	18%	16%	17%	17%	16%	16%
Local Surface Water	3%	6%	5%	5%	5%	5%
Imported Water from Metropolitan	19%	27%	27%	28%	27%	27%
Other Imported Water	3%	3%	3%	3%	3%	3%
Recycled Water for Direct Reuse	6%	7%	7%	7%	8%	8%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
Population (million)*	1.95	2.07	2.21	2.38	2.57	2.73

*The population projection is based on the service area population of all Chino Basin Appropriative Pool agencies. For some Appropriative Pool agencies, the service areas expand outside of the Chino Basin. The population data provided under Environmental Setting in Section XIV, Population and Housing provides a more accurate representation of the population within the Chino Basin, and more accurately reflects the population within the general areas in which OBMPU facilities are proposed to be developed.
**These data were obtained from the 2018 Storage Framework Investigation (SFI) prepared by WEI.

[7] Sourced from: WEI. (2019). *Final 2020 Storage Management Plan*. December 2019.

As stated under Section 3.3, Project Purpose and Objectives, the stakeholders concluded that the goals of the 2020 OBMP Update (OBMPU) are identical to the 2000 OBMP goals. The goals and their intents for the OBMPU include:

> ***Goal No. 1 - Enhance Basin Water Supplies.*** The intent of this goal is to increase the water supplies available for Chino Basin Parties and improve water supply reliability. This goal applies to Chino Basin groundwater and all other sources of water available for beneficial use.
>
> ***Goal No.2 - Protect and Enhance Water Quality.*** The intent of this goal is to ensure the protection of the long-term beneficial uses of Chino Basin groundwater.
>
> ***Goal No.3 - Enhance Management of the Basin.*** The intent of this goal is to encourage sustainable management of the Chino Basin to avoid Material Physical Injury, promote local control, and improve water-supply reliability for the benefit of all Chino Basin Parties.
>
> ***Goal No. 4 - Equitably Finance the OBMP.*** The intent of this goal is to identify and use efficient and equitable methods to fund OBMP implementation.

3.4.3 OBMPU Program Elements

There are physical, institutional, and financial impediments to achieving the OBMPU goals. The stakeholders identified and described several management activities that, if implemented, could remove these impediments and achieve the OBMPU goals. These activities have objectives and tasks that are directly related to one or more of the 2000 OBMP PEs. Thus, the nine PEs defined in the 2000 OBMP have been retained for the OBMPU. The OBMPU Implementation Plan Update (OBMPU IP) is a revision of the implementation plans included in the Peace I and Peace II Agreements and incorporates the proposed activities and facilities identified in the 2020 OBMPU and ongoing activities from the 2000 OBMP. The Project Description that follows those projects contained in the OBMPU Implementation Plan (IP) is an update to the OBMP Project Description evaluated in the 2000 OBMP PEIR and the 2010 Peace II SEIR. This environmental document will be used for all of the OBMPU components including the Implementation Plan whose proposed facilities are identified in the following section of this Project Description.

This section describes a series of one-time actions and ongoing management processes, organized by PE, that help achieve the goals of the OBMPU and set the framework for the next 30 years of basin-management activities. The implementation actions are listed by PE in Exhibit 4. Implementation of these management actions may result in the construction and operation of new facilities or the substantial upgrade of existing facilities and their operations. The facilities improvements that could result from the implementation of the OBMPU are listed in Exhibit 5.

For each PE, the following subsections (3.4.3.1 through 3.4.3.8) describe: the objectives and implementation actions established in 2000, implementation progress since 2000, and the implementation actions of the OBMPU, including the potential facility improvements that could result from implementation.

3.4.3.1 Program Element 1. Develop and Implement Comprehensive Monitoring Program

3.4.3.1.1 Objectives

The objective of PE 1 in the 2000 OBMP—*Develop and Implement Comprehensive Monitoring Program*—was to provide the information necessary to support the implementation of all other OBMP PEs and to evaluate their performance over time. The OBMPU restates the objective of PE 1: to collect the data and information necessary to support the implementation of all other OBMP PEs and to satisfy other regulations and Watermaster's obligations under its agreements, Court orders, and CEQA.

3.4.3.1.2 2000 OBMP Project Description and Implementation Progress

Watermaster began implementing its monitoring programs during the development of the 2000 OBMP. Pursuant to the 2000 OBMP Implementation Plan, long-term plans for monitoring groundwater production, groundwater level, groundwater quality, ground level (including remote sensing), surface water, and well construction/destruction monitoring programs have been developed and implemented. The monitoring programs have evolved over time to ensure that the data and information acquired not only meet the OBMP requirements, but also other regulatory requirements and Watermaster obligations under agreements, Court orders, and CEQA. In some instances, the monitoring programs were expanded to satisfy new basin-management initiatives and regulations. In other instances, the scope of the monitoring programs has been reduced with periodic reevaluation and redesign to achieve the monitoring objectives at reduced cost. Below is a summary of these monitoring programs as described in the 2000 OBMP PEIR and their current status:

Groundwater-level monitoring. The 2000 OBMP estimated that about 500 wells would be initially surveyed for groundwater levels to develop a long-term key-well monitoring program. The 2000 OBMP acknowledged that key wells located in agricultural areas would need to be replaced as necessary if the original well is destroyed when the agricultural land is converted to another use. From 1998 to 2001, Watermaster conducted the initial survey and developed the long-term monitoring program. The current groundwater-level monitoring program consists of about 1,300 wells: about 250 wells are measured by Watermaster at monthly to quarterly frequencies and about 1,050 wells are measured by the owners at various frequencies who then report the data to Watermaster. Exhibit 6 is a map that depicts the existing current groundwater-level monitoring program.

Groundwater-quality monitoring. The 2000 OBMP estimated that about 600 wells would be initially surveyed for groundwater quality to develop a long-term key-well monitoring program. The long-term monitoring program would consist of a minimum set of key wells monitored by Watermaster, but the number of wells was not specified. Additional groundwater-quality data would be obtained from the California Division of Drinking Water. From 1999 to 2001, Watermaster conducted the initial survey and developed a long-term monitoring program. The current groundwater-level quality program consists of about 800 wells: about 150 wells are sampled by Watermaster at quarterly to annual frequencies and about 650 wells are measured by the owners at various frequencies who then report it to the State Water Board's Division of Division Water (DDW). Exhibit 7 is a map that depicts the current groundwater-quality monitoring program.

Groundwater-production monitoring. The 2000 OBMP estimated that in-line totalizing flow meters would be installed at about 300 wells owned by private parties within the Agricultural Pool and assumed that Watermaster staff would visit all active wells in the Agricultural Pool to record groundwater-production data. It also assumed that the Appropriative and Overlying Non-Agricultural Pool well owners, and some Agricultural Pool well owners, would report production records to Watermaster. The groundwater-production monitoring program also included reporting of the sources of water used by each producer and how that water is disposed of after use to enable accurate salt budget estimates per PE 7 and for other water management investigations. Meters were installed at most Agricultural Pools wells by 2003. Currently, Watermaster staff monitors groundwater production at 150 agricultural wells, as well as collecting and compiling groundwater-production data reported by the Appropriative and Overlying Non-Agricultural Pool well owners. Exhibit 8 is a map that depicts the current groundwater-production monitoring program.

Surface-water discharge and quality monitoring. The 2000 OBMP estimated that 16 new water-level sensors would be installed at recharge and retention basins to estimate recharge. These water-level meters were installed in 2005 and are currently used to estimate recharge at these basins. It also assumed that Watermaster would assess the existing surface-water discharge and water-quality programs of the Santa Ana River and Chino Basin tributaries to determine the adequacy of the monitoring for characterizing ambient water quality and the impacts of basin management activities. In 2004 Watermaster implemented a surface-water monitoring program as part the maximum benefit monitoring program; this program has been modified over time with approval from the Regional Board. Currently, the program includes compiling discharge and water quality data from existing POTW discharges and USGS stream gaging stations and collecting grab water quality samples from sites along the Santa Ana River. Exhibit 9 is a map that depicts the current surface-water monitoring program.

Ground-level monitoring. The 2000 OBMP assumed that a network of ground-elevation stations in subsidence-prone areas would be installed and surveyed periodically. Currently, the ground-level monitoring program consists of high-frequency, groundwater-level monitoring at wells, remote-sensing and traditional leveling surveys at benchmarks to monitor vertical ground motion, monitoring of the vertical component of aquifer-system compression and expansion at Watermaster extensometer facilities, and measurement of horizontal ground-surface deformation across areas that are experiencing differential land subsidence by electronic distance measurements (EDMs) to understand the potential threats and locations of ground fissuring. Exhibit 10 is a map that depicts the existing ground-level monitoring program.

Well construction, abandonment, and destruction. The 2000 OBMP assumed that Watermaster would develop cooperative agreements with the counties of Los Angeles, Orange, Riverside, and San Bernardino to be informed when a new well has been constructed. Additionally, Watermaster would review its well database, make appropriate inspections, consult with well owners, compile a list of abandoned wells, and request that wells be properly destroyed by the owner. Watermaster continues to implement this program. Watermaster has developed cooperative agreements with the DDW and the Counties of Los Angeles, Orange, Riverside, and San Bernardino to ensure that the appropriate entities know that a new well has been constructed. Watermaster staff makes best efforts to obtain well design information, lithologic and geophysical logs, groundwater-level and quality data, and aquifer-stress testing data.

3.4.3.1.3 OBMPU PE 1 Project Description

Exhibit 4 shows the implementation actions for PE 1 under the OBMPU, which include continuing the ongoing monitoring and reporting program described below and developing and updating an *OBMP Monitoring and Reporting Work Plan*. Implementation of these actions may result in the construction of new monitoring facilities in the Chino Basin as described by monitoring type below. The following summarizes each of the Watermaster's ongoing monitoring and reporting programs, and any new monitoring facilities envisioned in the OBMPU, that are needed to comply with regulations or to meet Watermaster's obligations under its agreements, Court orders, and CEQA. Table 3.2 below is a list of the monitoring and reporting requirements and the associated regulatory entities.

Table 3.2
WATERMASTER MONITORING AND REPORTING REQUIREMENTS

Monitoring and Reporting Requirement	Requiring Entity					
	Court	State Board	Regional Board	California DFW	California DWR	CEQA
Water Rights Compliance Annual Reports		X		X		
SGMA Annual Report for Adjudicated Basins					X	
Biannual Evaluation of the Cumulative Effect of Transfers	X					
Biannual Evaluation of the Balance of Recharge and Discharge	X					
Annual Finding of Substantial Compliance with the Recharge Master Plan	X					
Annual Report of Compliance with SB 88 and SWRCB Regulations for Measurement and Reporting of Diverted Surface Water		X				
Safe Yield Recalculation	X					
Recharge Master Plan Update (RMPU)	X					
State of the Basin Report	X					
California Statewide Groundwater Elevation Monitoring Program (CASGEM)					X	
Chino Basin Maximum Benefit Annual Report			X			
Annual Report of the Prado Basin Habitat Sustainability Committee						X
Water Recycling Requirements for the Chino Basin Recycled Water Groundwater Recharge Program			X			
Annual Report of the Ground-Level Monitoring Committee	X					
OBMP Semi-Annual Status Reports	X					

Groundwater-level monitoring. Watermaster's groundwater-level monitoring program supports many Watermaster management functions, including: groundwater model development and recalibration, periodic recalculations of Safe Yield, evaluating the cumulative impacts of transfers and the balance of recharge and discharge, subsidence management, MPI evaluations, estimation of storage changes, other scientific demonstrations required for groundwater management, and many regulatory requirements, such as the demonstration of Hydraulic Control, the triennial recomputation of ambient water quality, and Prado Basin habitat sustainability. The monitoring program includes field work implemented by Watermaster staff and consultants at private wells and monitoring wells, and cooperative programs to collect, compile, and store data from well owners and other entities including municipal water agencies, private water companies, the California Department of Toxic Substance Control (DTSC), the County of San Bernardino, and various private consulting firms. To continue to comply with regulations and meet

Watermaster's obligations under its agreements, Court orders, and CEQA, it is anticipated that new monitoring wells will need to be constructed. Many of the new monitoring wells will be needed to replace private wells that are currently used for monitoring, but will be destroyed as agricultural lands are converted to urban land uses. Other new monitoring wells will be needed to support regulatory compliance or other Watermaster management initiatives.

Under the OBMPU, up to 100 new monitoring wells will be constructed to monitor groundwater levels in the Chino Basin with total depths ranging from 50 to 1,500 feet and four- to six-inches in diameter. The average area of disturbance of each well site is anticipated estimated to be half an acre or less. Additionally, the ongoing groundwater-level monitoring program will continue. (See Exhibit 6).

Groundwater-quality monitoring. Watermaster's groundwater-quality monitoring program supports many Watermaster management and regulatory-compliance functions including: compliance with the maximum benefit SNMP (refer to P. 34 for a detailed discussion), characterization of non-point source contamination and plumes associated with point-source discharges, support for ground-water modeling, characterization of groundwater/surface-water interactions in the Prado Basin area, and characterization of basin-wide trends in groundwater quality as part of the Watermaster's biennial State of the Basin report. The monitoring program includes sampling and analysis programs implemented by Watermaster staff at private wells and monitoring wells, and cooperative programs to collect, compile, and store data from well owners and other entities that conduct groundwater-quality monitoring programs. To continue to comply with regulations and meet Watermaster's obligations under its agreements, Court orders, and CEQA, it is anticipated that new monitoring wells will need to be constructed. Many of the new monitoring wells will be needed to replace private wells that are currently used for monitoring but will be destroyed as agricultural lands are converted to urban land uses. Other new monitoring wells will be needed to support regulatory compliance or other Watermaster management initiatives.

Under the OBMPU, up to 100 new monitoring wells (this is a total of 100 monitoring wells) will be constructed to monitor groundwater quality in the Chino Basin with total depths ranging from 50 to 1,500 feet and four- to six-inches in diameter. The average area of disturbance of each well site is estimated to be half an acre or less. Additionally, the ongoing groundwater-quality monitoring program will continue. Note that monitoring wells can serve a dual purpose by monitoring groundwater levels and providing water quality sampling sites. (See Exhibit 7).

Groundwater-production monitoring. Watermaster uses groundwater-production data to quantify and levy assessments pursuant to the Judgment. Estimates of production are also essential inputs to recalibrate Watermaster's groundwater flow model, which is used to inform the recalculation of Safe Yield, evaluate the state of Hydraulic Control, perform MPI evaluations, and support many other Watermaster initiatives. Members of the Appropriative and Overlying Non-Agricultural Pools and CDA record their own meter data and submit them to Watermaster. For Agricultural Pool wells, Watermaster performs a field program to install totalizing flow meters, repair or replace broken meters, and visit the wells quarterly to record the metered data. Watermaster has determined that for some Agricultural Pool wells it is not practical to repair, replace or install new meters. In these cases, Watermaster applies a water-duty based method to estimate production on an annual basis.

Under the OBMPU, up to 300 in-line flow meters will be installed in agricultural wells to accurately estimate production by the Agricultural Pool. Watermaster's ongoing groundwater-production monitoring program will continue. (See Exhibit 8). This activity is an ongoing management activity being carried out by the Watermaster.

Surface-water and climate monitoring. Watermaster's surface-water and climate monitoring program supports many Watermaster management functions, including: groundwater model development and recalibration, periodic recalculations of Safe Yield, evaluating the cumulative impacts of transfers and the balance of recharge and discharge, evaluating Storage and Recovery Program applications, evaluating MPI, recharge master planning, evaluating Prado Basin habitat sustainability, evaluating compliance with the SWRCB diversion permits, supporting maximum benefit SNMP compliance (refer to P.34), and supporting recycled-water recharge permits compliance. Most of the data are collected from publicly available sources, including POTW discharge data, USGS stream gaging station data, and precipitation and temperature data measured at public weather stations or downloaded from spatially gridded datasets. Chino Basin stormwater, imported water, and recycled water recharge data are collected by the IEUA and shared with Watermaster. Watermaster staff also performs surface-water monitoring of the Santa Ana River to comply with the maximum-benefit SNMP.

Under the OBMPU, flow and stage measuring equipment and meteorological monitoring equipment will be installed in and near stormwater drainage and recharge facilities, respectively, to improve the accuracy of surface-water diversion and recharge measurements. Watermaster and IEUA's ongoing surface-water and climate monitoring efforts will continue. (See Exhibit 9). This activity will typically occur within a 10' x 10' area and most often within existing disturbed areas.

Ground-level monitoring. Watermaster's ground-level monitoring program is conducted pursuant to the *Chino Basin Subsidence Management Plan.* The objective of the plan is to minimize or stop the occurrence of land subsidence and groundwater fissuring within the Chino Basin. The ground-level monitoring program is focused across the western portion of Chino Basin within defined Areas of Subsidence Concern—areas of Chino Basin that are susceptible to land subsidence.

Under the OBMPU, up to three extensometers will be constructed in the areas prone to subsidence with a total depth ranging from 50 to 1,500 feet. The extensometers are installed in conjunction with new or existing wells. Watermaster's ongoing ground-level monitoring program will continue. (See Exhibit 10).

Well construction, abandonment, and destruction. Watermaster maintains a database of all wells in the basin and performs periodic well inspections. Sometimes, Watermaster staff identifies a new well while implementing its monitoring programs. Well owners must obtain permits from appropriate county and state agencies to drill and construct a well and put it into use.

The presence of abandoned wells is a threat to groundwater supply and a physical hazard. Watermaster staff periodically reviews its database, makes appropriate inspections, consults with well owners, maintains a list of abandoned wells in the Chino Basin, and provides this list to the counties for follow-up and enforcement. The owners of the abandoned wells are requested to properly destroy their wells following the ordinances developed by the county in which they are located.

Under the OBMPU, Watermaster will continue these efforts, which will not involve and new or upgraded facilities.

Biological monitoring. Watermaster's biological monitoring program is conducted pursuant to the adaptive monitoring program (AMP) for the Prado Basin Habitat Sustainability Program (PBHSP). The PBHSP was created under a Peace II mitigation measure to monitor potential impacts on Prado Basin habitat from implementing hydraulic control. The objective of the PBHSP is to ensure that the groundwater-dependent ecosystem in Prado Basin will not incur unfore-seeable significant adverse impacts due to implementation of the Peace II Agreement. The monitoring program produces time series data and information on the extent and quality of the riparian habitat in the Prado Basin over a historical period that includes both pre- and post-Peace II implementation. Two types of monitoring and assessment are performed: regional and site-specific. Regional monitoring and assessment of the riparian habitat is performed by mapping the extent and quality of riparian habitat over time using multi-spectral remote-sensing data and air photos. Site-specific monitoring performed in the Prado Basin includes field vegetation surveys and seasonal ground-based photo monitoring.

Under the OBMPU, Watermaster will continue these efforts, which will not involve any new or upgraded facilities. Since the 2000 OBMP PEIR and related CEQA documents have already evaluated the environmental impacts associated with the OBMP and the OBMPU will simply continue this previously analyzed program component, this activity will be treated as part of the baseline against which the OBMPU is evaluated.

Water-supply and water-use monitoring. Watermaster compiles water supply and water-use data from the Parties to support two required reporting efforts: the Watermaster Annual Report to the Court and annual reporting requirements for adjudicated basins pursuant to the Sustainable Groundwater Management Act (SGMA). The data are also used to support calibration of Watermaster's surface-water and groundwater models. Monthly water use volumes for supply sources other than Chino Basin groundwater are collected from the Parties; this includes groundwater from other basins, recycled water, imported water, and native surface water.

Under the OBMPU, Watermaster will continue these efforts, which will not involve any new or upgraded facilities.

Planning information. Watermaster periodically collects and compiles information on the Parties' best estimates of their future demands and associated water-supply plans. The data are used for future planning investigations that require the use of Watermaster's surface-water and groundwater models, such as Safe Yield recalculations and RMP updates.

Under the OBMPU, Watermaster will continue these efforts, which will not involve any new or upgraded facilities.

3.4.3.2 Program Element 2. Develop and Implement Comprehensive Recharge Program

3.4.3.2.1 Objectives

The 2000 OBMP included PE 2—*Develop and Implement Comprehensive Recharge Program* — to increase stormwater recharge to offset the recharge lost due to channel lining, to ensure there will be enough supplemental water recharge capacity available to Watermaster to replenish overdraft, and to maximize the recharge of recycled and supplemental waters to protect or enhance Safe Yield. Through the OBMPU process it was determined that the objective of PE 2 remains the same.

3.4.3.2.2 2000 OBMP Project Description and Implementation Progress

The comprehensive recharge program, as described in the 2000 OBMP PEIR, consisted of three phases, (1) to screen and assess potential recharge sites (completed prior to the development of the 2000 OBMP PEIR), (2) to develop engineering and institutional assessments for the sites that passed the screening assessment, including expected recharge rates, cost, etc., and (3) to develop a recharge master plan (RMP) to design, construct, and manage recharge basins. The plan would incorporate recycled water and imported water recharge.

The specific projects described in the 2000 OBMP PEIR included improvements to the Upland, College Heights, Brooks, Eight and Seventh Street, Etiwanda Conservation, Lower Day, Victoria, San Sevaine, Turner, Hickory, Etiwanda Percolation, Jurupa, and Wineville Basins, and the construction of the RP-3 Basins.

Watermaster completed the RMP in 2001. The 2001 RMP and subsequent Recharge Master Plan Updates (RMPU) (2010, 2013, and 2018) were developed in open and transparent planning processes that were convened by Watermaster through an ad-hoc committee. As part of the *2013 Amendment to the 2010 RMPU* (2013 RMPU), the RMPU Steering Committee, now referred to as the Recharge Investigations and Projects Committee (RIPComm), was created to assist Watermaster and the IEUA in preparing RMPUs. The RIPComm is open to all interested stakeholders and meets regularly to discuss the status of recharge projects under construction and potential new projects for inclusion in future RMPUs. The outcomes of the 2001 Recharge Master Plan and subsequent RMPUs (2010, 2013, and 2018) are summarized below:

- 2001 Recharge Master Plan: Watermaster and the IEUA, constructed the first set of recharge facilities to exercise its rights pursuant to its diversion permits, increasing average annual stormwater recharge by about 9,500 afy. As part of this work, Watermaster and the IEUA modified seventeen existing flood retention and conservation facilities to increase diversion rates, conservation storage, and recharge, and constructed two new recharge facilities. The cost of these recharge improvements was about $60 million. The IEUA and Watermaster paid for about half of this cost, while the other half was funded through Proposition 13 grants and other grant programs.
- 2013 RMPU: As of this writing, Watermaster and the IEUA are completing the final design/construction of five of the recommended 2013 RMPU facilities, and they should be online in 2021. These facilities are expected to increase stormwater recharge by about 4,700 afy with a cumulative increase to 14,200 afy.
- 2018 RMPU: The 2018 RMPU did not recommend any new recharge projects. One of the findings of the 2018 RMPU was that Watermaster, based on the best available planning information at that time, had enough supplemental water recharge capacity to it meet its Replenishment Obligations via wet-water recharge through 2050.

Upon completion of the 2013 RMPU facilities, the annual average stormwater recharge performed pursuant to its diversion permits is expected to be about 15,000 afy.[8] Thus, in the first 20 years of OBMP implementation, average annual stormwater recharge will have increased by about 14,200 afy, and supplemental water recharge capacity will have increased by 27,600 afy. And, the IEUA has increased the recharge of recycled water from about 500 afy in 2000 to about 13,000 afy in 2018. The next RMPU must be completed and submitted to the Court by October 2023. Exhibit 11 shows the recharge basins improvements by recharge master plan effort.

[8] WEI (2018). Recharge Master Plan Update. September 2018.
http://www.cbwm.org/docs/engdocs/2018%20RMPU/20180914_2018_RMPU_final.pdf

There are four managed recharge mechanisms in the Chino Basin:

Recharge basins. Imported water, stormwater, dry-weather flow, and recycled water are recharged at 17 recharge basins. Watermaster has permits from the State Water Resources Control Board (SWRCB) (which are held in trust for Watermaster parties). This allows the parties to divert stormwater and dry-weather flow to the recharge basins for recharge, store it in the Chino Basin, and subsequently recover it for beneficial use.

Aquifer Storage and Recovery (ASR) wells. ASR wells are used to inject treated imported water into the Basin and to pump groundwater. The MVWD owns and operates four ASR wells in the Chino Basin.
In-lieu recharge. In-lieu recharge can occur when a Chino Basin Party with pumping rights in the Chino Basin elects to use supplemental water directly in lieu of pumping some or all its rights in the Chino Basin for the specific purpose of recharging supplemental water.

MS4 facilities. The 2013 RMPU implementation included a process to create and update a database of all known runoff management projects implemented through the Municipal Separate Storm Sewer System (MS4) permits in the Chino Basin. This was done to create the data necessary to evaluate the significance of new stormwater recharge created by MS4 projects. As of FY 2016/2017, a total of 114 MS4 projects were identified as complying with the MS4 permit through infiltration features. These 114 projects have an aggregate drainage area of 1,733 acres.

Table 3.3 below describes the existing recharge capacity in the Chino Basin by source water and recharge mechanism. [9]

Table 3.3
ESTIMATED RECHARGE CAPACITIES IN THE CHINO BASIN

Source Water	Recharge Mechanism	2018 Conditions	2018 Conditions Plus Current Recommended 2013 RMPU Projects	2018 Conditions Plus Current Recommended 2013 RMPU Projects and Restoration of WFA Capacity [10]
Stormwater	Average Stormwater Recharge in Spreading Basins	10,150	14,950	14,950
	Average Expected Recharge of MS4 Projects	380	380	380
	Subtotal	10,530	15,330	15,330

[9] WEI (2018). Recharge Master Plan Update. September 2018. http://www.cbwm.org/docs/engdocs/2018%20RMPU/20180914_2018_RMPU_final.pdf
[10] The Water Facilities Authority (WFA) Agua de Lejos Treatment Plant (WFA plant) treats imported water purchased from the IEUA at the WFA plant and delivers it to the cities of Chino, Chino Hills, Ontario, and Upland, and to the MVWD. Each of these WFA member agencies has a contracted share of the plant's total capacity of 81 million gallons per day (mgd) (90,700 afy). The WFA plant's current capacity is less than its rated capacity of 81 mgd (90,700 afy) due to solids handling limitations. According to WFA, the current capacity of the WFA plant is about 40 mgd in the summer months and about 20 mgd in the winter months. Based on the estimated recharge capacities developed in the 2018 Recharge Master Plan, restoring the WFA plant to its rated capacity would increase in-lieu recharge capacity in the Chino Basin by about 23,000 afy.

Source Water	Recharge Mechanism	2018 Conditions	2018 Conditions Plus Current Recommended 2013 RMPU Projects	2018 Conditions Plus Current Recommended 2013 RMPU Projects and Restoration of WFA Capacity [10]
Supplemental Water	Spreading Capacity for Supplemental Water	56,600	56,600	56,600
	ASR Injection Capacity	5,480	5,480	5,480
	In-Lieu Recharge Capacity	17,700	17,700	40,900
	Subtotal	79,780	79,780	102,980
Total		90,310	95,110	118,310

3.4.3.2.3 OBMPU Project Description

Exhibit 4 shows the implementation actions for PE 2 under the OBMPU, which include continuing to convene RIPComm, complete the 2023 RMPU and update it no less than every five years thereafter, and implementing recharge projects based on need and available resources. The RMPU process is an ongoing requirement of the Peace Agreement, the Peace II Agreement, and the December 2007 Court Order that approved the Peace II Agreement. The next RMPU is due to the Court by October 2023 and must be updated no less frequently than every five years thereafter.

Through the OBMPU stakeholder process, the Parties expressed interest in maximizing the recharge of recycled, imported, and stormwaters where feasible. Although meeting these objectives is not a requirement for the RMPU, the next (or a future) RMP process could accomplish this by considering projects that will meet other needs of the Parties, such as providing additional recharge capacity for Storage and Recovery Programs and addressing pumping sustainability and land subsidence challenges. There are opportunities and challenges for increasing these efforts in the future:

- The theoretical average annual stormwater discharge available for diversion under the existing water rights permits is about 74,000 afy (ranging from 21,400 to 110,500 afy for the combined permitted diversions) and the annual average stormwater recharge performed pursuant to these permits is expected to be about 14,950 afy. The difference between these two values, about 60,000 afy, is a lost opportunity for stormwater recharge. Additional improvements to existing facilities and operations and/or new facilities are required to achieve the stormwater recharge potential.
- Using criteria developed by the Watermaster parties, Watermaster and IEUA shall select projects to be implemented only if it is cost effective, for instance a metric could be the melded unit cost of stormwater recharge resulting from the projects is less than the avoided unit cost of purchasing imported water from the Metropolitan Water District of Southern California [Metropolitan]). No new recharge projects were recommended for implementation in the 2018 RMPU. New evaluation criteria that includes both cost and reliability of the new recharge will be required to increase stormwater recharge.
- The criteria on how and where to conduct recharge needs to be reviewed and updated if it can be demonstrated that recharge can be used to effectively address existing basin

management challenges that include salinity management, land subsidence, maintaining Hydraulic Control, and pumping sustainability. Historically, Watermaster has attempted to manage the recharge of stormwater and supplemental water to promote the balance of recharge and discharge to, in part, address these challenges. Additional investigation needs to be done to determine if recharge improvements can be made to better address these basin management challenges. New evaluation and selection criteria will to be developed that consider both cost and reliability to increase the stormwater available for recharge.

- New recharge facilities and/or improvements to existing facilities will be needed if Parties or others want to increase supplemental water recharge capacity for Storage and Recovery Programs.
- Recharge of recycled and imported water via recharge basins is limited by competing uses for recharge basins for storm, imported and recycled water recharge and by seasonal storage – recycled and imported water supplies in excess of demands tend to be available in the winter, at the same time the recharge basins are being used for stormwater recharge. Thus, groundwater recharge facilities that increase recycled and imported water recharge and storage capacity, specifically during the wintertime should be evaluated.

The new recharge facilities and/or improvements to existing facilities that may result from the RMPU process as envisioned under the OBMPU are listed below and shown on Exhibit 12. The proposed storage facilities would divert surface water to be stored at the proposed facilities. The amount of surface water diverted by the proposed storage and recharge facilities is not presently known, and it would be speculative to estimate at this time. Future surface water diversions to these facilities would depend on future applications to divert surface water to a specific proposed facility, and would require a second tier CEQA evaluation.

- Constructing and operating a new surface water storage basin for stormwater and supplemental waters at the California Institute for Men (CIM), facilities to divert stormwater from Chino Creek to the new storage basin, facilities to convey stormwater and dry-weather flow from the new storage basin to recharge facilities in the northern part of the basin, and facilities to convey supplemental waters to the storage basin.
  - The new storage basin at the CIM would have an area between 50 and 100 acres.
- Constructing flood Managed Aquifer Recovery (MAR) facilities in the northeast part of basin to recharge supplemental water. This assumes that land in existing agricultural uses can be flooded to achieve managed aquifer recharge. The potential cumulative area of these facilities is about 200 acres, the total agricultural land use area in the northern part of the Chino Basin.
- Constructing and operating a new surface water storage basin at the existing Lower Cucamonga Ponds, facilities to divert stormwater and dry-weather flow from Cucamonga Creek to the new storage basin and facilities to convey stormwater from the new storage basin to recharge facilities in the northern part of the basin.
  - The Lower Cucamonga Ponds are an existing detention basin owned by the San Bernardino County Flood Control District. The ponds would be converted into one large conservation facility to store stormwater. It would have an area of about 50 acres.
- Constructing and operating a new surface water storage basin at the existing Mills Wetlands, facilities to divert stormwater and dry-weather flow from Cucamonga Creek to the new storage basin and facilities to convey stormwater from the new storage basin to recharge facilities in the northern part of the basin.

  - The Mills Wetlands are existing artificial wetlands used to treat water from the Cucamonga Creek. The wetlands would be converted into a conservation facility to store stormwater with an area of about 30 acres.
- Constructing and operating a new surface water storage basin at the existing Riverside Basin, facilities to divert stormwater and dry-weather flow from Day Creek to the new storage basin and facilities to convey stormwater from the new reservoir to recharge facilities in the northern part of the basin.
  - The Riverside Basin is an existing detention basin owned by the San Bernardino County Flood Control District. The basin would be converted into a conservation facility to store stormwater with an area of about 60 acres.
- Constructing and operating a new surface water storage basin for stormwater and supplemental waters at the existing Vulcan Basin, facilities to divert stormwater and dry-weather flow from the West Fontana Channel and surrounding urban areas to the new storage basin, facilities to convey stormwater from the new reservoir to recharge facilities in the northern part of the basin, and facilities to convey supplemental waters to the storage basin.
  - The Vulcan Basin is an existing facility formerly used as a sand and gravel mine. The basin would be converted into a conservation facility to store stormwater and has an area of about 60 acres.
- Constructing improvements at the Jurupa Basin that include grading improvements to enable the diversion and storage of storm and supplemental waters, removing fine-grained material from the Jurupa Basin to improve its infiltration rate and increase recharge capacity and improvements at the Jurupa pump station to increase the time the pump station can operate at full capacity. The amount of area that may be impacted has not yet been defined.
- Constructing and operating a new surface water storage basin at the confluence of San Antonio and Chino Creeks (proposed Confluence Project), facilities to divert stormwater and dry-weather flow from of San Antonio and Chino Creeks to the new storage basin and facilities to convey stormwater from the new reservoir to recharge facilities in the northern part of the basin.
  - The Confluence Project would have an area of about 10 acres and a depth of about 35 feet
  - This would result in about 200,000 cubic yards of material removal, with the goal of balancing the cut and fill to minimize material export.
- Constructing improvements to the WFA plant to remove some or all its solids handling limitations and other improvements to increase its capacity to its original design capacity and thereby increase in-lieu recharge capacity.
- Collaborating with the MS4 permittees to ensure MS4-compliance projects prioritize recharge. This would result in the construction of new MS4-compliance facilities that increase recharge in the Chino Basin. No estimate of potential area impacts is available.
- Constructing up to 60 ASR wells to increase supplemental water recharge capacity by up to 70,000 afy. In the case that recycled water is injected into the basin, a subset of these wells would also be injection wells.
  - Depth of new ASR wells could range between 500 and 1,500 feet.
  - The average area of disturbance of each well site is estimated to be half an acre or less.
  - Constructing conveyance facilities to convey the supplemental water to the ASR wells and to convey produced water to end users.
  - Constructing improvements to wastewater treatment plants if recycled water is injected (described in Section 3.3.4.5).

- The expected location of ASR wells is north of Highway 60 in MZ-1, MZ-2 and MZ-3.

As shown in Exhibit 5, some of these facilities help achieve the objectives of PE 4 by creating additional recharge capacity in MZ-1 that could be used to increase piezometric levels in that area (see Section 3.3.3.4). The additional recharge capacity created from these facilities can also help achieve the objectives of PE 5 and PE 8/9, because these facilities can be used to recharge supplemental water to improve water supply reliability and/or implement a Storage and Recovery Program. Finally, these facilities will help address pumping sustainability issues in the JCSD, FWC, and Chino-II Desalter wellfield areas.

3.4.3.3 Program Element 3. Develop and Implement a Water Supply Plan for Impaired Areas

3.4.3.3.1 Objectives

The 2000 OBMP included PE 3— *Develop and Implement a Water Supply Plan for Impaired Areas*—to maintain and enhance Safe Yield and maximize beneficial uses of groundwater. The OBMP recognized that urban land uses would ultimately replace agricultural land uses, which had been the primary land use in the southern portion of the basin throughout the 20th century, and that if municipal pumping did not replace agricultural pumping, groundwater levels would rise and discharge to the Santa Ana River. The potential consequences would be the loss of Safe Yield and the outflow of high-TDS and high-nitrate groundwater from the Chino Basin to the Santa Ana River—the latter of which could impair downstream beneficial uses in Orange County.

The OBMP estimated that to maintain the Safe Yield, approximately 40,000 afy of groundwater would need to be produced to replace Agricultural Pool pumping in the southern part of the basin. The Chino Basin Desalters were identified as the optimal multi-benefit project to replace the expected decrease in agricultural production to maintain or enhance Safe Yield, to pump and treat high-salinity groundwater in support of PE 7, to meet growing municipal demands in support of PE 5, and to protect the beneficial uses of the Santa Ana River. Additionally, PE 6 envisioned that the Chino Basin Desalters could also be used to clean up the volatile organic compound (VOC) plumes that would eventually be intercepted by the Desalter wells. Through the OBMPU process it was determined that the objective of PE 3 remains the same.

3.4.3.3.2 2000 OBMP Project Description and Implementation Progress

The water-supply plan for impaired areas, as described in the 2000 OBMP PEIR, consisted of two options: a reverse osmosis (RO) only alternative and a RO/ion exchange (IX) alternative. Both alternatives involved the construction of two RO regional desalter facilities with their associated wellfields, expansion of the Chino Desalter Number 1, and construction of water transmission pipelines, brine disposal pipelines and pump stations. The RO/IX alternative would also include an IX treatment train. The wellfields would be located north of the Santa Ana River along the southern portion of the Chino Basin to help maintain Safe Yield by reducing losses to the river. The locations of the groundwater treatment plant would be based on the location of the proposed well fields, proposed product water delivery points and access to the Inland Empire Brine Line for brine disposal. Facility capacities for both RO and RO/IX were based on the assumption that approximately 40,000 afy of poor-quality groundwater would need to be pumped in the southern portion of the Chino Basin in order to maintain Safe Yield value and to prevent approximately 40,000 afy of poor-quality groundwater from discharging into the Santa Ana River. Both facilities would require the installation of approximately 32,000 feet of pipeline ranging in size from 10 to 20 inches in diameter and two pump stations of 200 to 250 Horsepower (HP).

As of January 2020, there are 31 Chino Desalter wells with the capacity to pump about 34 mgd (37,600 afy) of brackish groundwater from the southern portion of the Chino Basin, though not all wells are currently in operation. Pumped groundwater is conveyed to the Chino-I and Chino-II Desalters that treat the groundwater with RO, IX and air strippers. The treated water is then conveyed to the CDA's member agencies. The brine created in the treatment process is discharged to the Inland Empire Brine Line. Over the last five years, total desalter production has ranged from about 28,100 to 30,000 afy, averaging 29,200 afy. The following describes the history of the expansion of the Chino Basin Desalters:

- The Chino-I Desalter, which included 11 production wells, began operating in 2000 with a design capacity of 8 million gallons per day (mgd; about 9,000 afy).
- In 2005, the Chino-I Desalter capacity was expanded to 14 mgd (about 16,000 afy) with the construction of three additional wells.
- The Chino-II Desalter, which included eight production wells, began operating in June 2006 with a design capacity of 15 mgd (about 17,000 afy).
- In 2012, the CDA completed construction of the Chino Creek Well Field (CCWF) in the western portion of the basin which added five wells and additional capacity of about 1.3 mgd (1,500 afy) to the Chino-I Desalter; four of these wells began pumping between 2014 and 2016.
- In 2015, two additional Chino-II Desalter wells were constructed, and pumping began in 2018. These two wells, plus one additional well that is planned for construction, are part of the final expansion of the Chino Basin Desalters to meet the 40,000 afy pumping requirement of the OBMP, Peace Agreements, and maximum benefit SNMP (refer to P.34). This final expansion is expected to be completed by 2021.

The construction and operation of the Chino Basin Desalters became a fundamental component of the Chino Basin maximum benefit SNMP developed pursuant to PE 7. Watermaster and the IEUA are jointly responsible for the implementation of the maximum benefit SNMP, which enables the recycled-water reuse and recharge programs in the Chino Basin in support of PEs 2 and 5. The SNMP (refer to P. 34) includes nine "maximum benefit commitments." One commitment is the achievement and attainment of Hydraulic Control to limit groundwater outflow from the Chino-North Groundwater Management Zone (GMZ) to *de minimis* levels to protect downstream beneficial uses. Hydraulic Control is also necessary to maximize the Safe Yield. The operation of the Chino Basin Desalters is necessary to attain Hydraulic Control. Three of the nine maximum benefit commitments are related to the design and construction of the Chino Basin Desalters.

Through the OBMPU process it was determined that no new or upgraded facilities beyond those previously envisioned to achieve PE 3 would be implemented.

3.4.3.4 Program Element 4. Develop and Implement Comprehensive Groundwater Management Plan for Management Zone 1

3.4.3.4.1 Objectives

The 2000 OBMP included PE 4—*Develop and Implement Comprehensive Groundwater Management Plan for Management Zone 1*—to characterize land subsidence spatially and temporarily, identify its causes, and, where appropriate, develop and implement a program to manage it. Through the OBMPU process, the objective of PE 4 was refined to: reduce or stop the occurrence of land subsidence and ground fissuring in the Chino Basin or reduce it to tolerable levels. PE 4 achieves this objective by implementing the Watermaster's Subsidence Management Plan and adapting the plan as warranted by data, analyses, and interpretations.

3.4.3.4.2 2000 OBMP Project Description and Implementation Progress

The comprehensive groundwater management plan for MZ-1, as described in the 2000 OBMP PEIR, called for the development and implementation of an interim management plan for MZ-1 that would:

- Minimize subsidence and fissuring in the short-term.
- Collect information necessary to understand the extent, rate, and mechanisms of subsidence and fissuring.
- Formulate a management plan to reduce to tolerable levels or abate future subsidence and fissuring.

The interim management plan for MZ-1 included: (1) a voluntary reduction of production in the deep aquifer system in southern MZ-1 for a 5-year period to evaluate its impacts on subsidence, (2) an effort to balance the recharge and discharge in MZ-1, in part, through the physical recharge of 6,500 afy of Supplemental Water in MZ-1, and (3) an aquifer-system and land-subsidence investigation in the southwestern region of MZ-1 to support the development of a long-term management plan for MZ-1 (second and third bullets above). The investigation was titled the *MZ-1 Interim Monitoring Program* (IMP).[11]

From 2001 to 2005, Watermaster developed and conducted the IMP under the guidance of the MZ-1 Technical Committee, which consisted of the MZ-1 Parties and their technical consultants. The implementation of the IMP provided enough information for Watermaster to develop "Guidance Criteria" for the MZ-1 Parties that, if followed, would minimize the potential for subsidence and fissuring in the investigation area (Managed Area). The methods, results, and conclusions of the IMP, including the Guidance Criteria, were described in detail in the *MZ-1 Summary Report*.[12] The Guidance Criteria formed the basis for the long-term management plan, documented as the *MZ-1 Subsidence Management Plan* (MZ-1 Plan).[13] To minimize the potential for future subsidence and fissuring in the Managed Area, the MZ-1 Plan recommended that the MZ-1 Parties manage their groundwater pumping pursuant to the Guidance Criteria. Implementation of the MZ-1 Plan began in 2008. The MZ-1 Plan called for the continuation of monitoring, data analysis, annual reporting, and adjustments to the MZ-1 Plan, as warranted by the data. Additionally, the MZ-1 Plan expanded monitoring of the aquifer-system and land subsidence into other areas of the Chino Basin where the IMP indicated concerns for future subsidence and ground fissuring. These so-called "Areas of Subsidence Concern" are: Central MZ-1, Northwest MZ-1, Northeast Area, and Southeast Area (see Exhibit 10).

The MZ-1 Plan stated that if data from existing monitoring efforts in the Areas of Subsidence Concern indicate the potential for adverse impacts due to subsidence, Watermaster would revise the plan to avoid those adverse impacts. This resulted in the development of the *2015 Chino Basin Subsidence Management Plan* (Subsidence Management Plan)[14] and a recommendation

[11] Chino Basin Watermaster. (2003). *Optimum Basin Management Program, Management Zone 1 Interim Monitoring Program*. Prepared by Wildermuth Environmental, Inc. January 8, 2003.

[12] Chino Basin Watermaster. (2006). *Optimum Basin Management Program, Management Zone 1 Interim Monitoring Program, MZ-1 Summary Report*. Prepared by Wildermuth Environmental, Inc. February, 2006. http://www.cbwm.org/docs/engdocs/Land%20Subsidence/20071017_MZ1_Plan%20--%20Appendix_A_MZ1_SummaryReport_20060226.pdf

[13] Chino Basin Watermaster. (2007). *Chino Basin Optimum Basin Management Program, Management Zone 1 Subsidence Management Plan*. October, 2007. http://www.cbwm.org/docs/engdocs/Land%20Subsidence/20071017_MZ1_Plan.pdf

[14] Chino Basin Watermaster. (2015). *Chino Basin Subsidence Management Plan.* July 23, 2015. http://www.cbwm.org/docs/engdocs/Land%20Subsidence/20150724%20-%20Chino%20Basin%20Subsidence%20Management%20Plan%202015/FINAL_2015_CBSMP.pdf

to develop a subsidence management plan for Northwest MZ-1. Land subsidence in Northwest MZ-1 was first identified as a concern in 2006 in the MZ-1 Summary Report and again in 2007 in the MZ-1 Plan. Since then, Watermaster has been monitoring vertical ground motion in this area via InSAR and groundwater levels with pressure transducers at selected wells. Of concern is that subsidence across the San Jose Fault in Northwest MZ-1 has occurred in a pattern of concentrated differential subsidence—the same pattern of differential subsidence that occurred in the Managed Area during the time of ground fissuring. Ground fissuring is the main subsidence-related threat to infrastructure. Because of the threat for ground fissuring, Watermaster increased monitoring efforts in Northwest MZ-1 beginning in FY 2012/13 to include ground elevation surveys and EDMs to monitor ground motion and the potential for fissuring.

In 2015, the GLMC developed the *Work Plan to Develop a Subsidence Management Plan for the Northwest MZ-1 Area* (Work Plan).[15] The Work Plan is an ongoing Watermaster effort and includes a description of a multi-year scope-of-work, a cost estimate, and an implementation schedule. The Work Plan was included in the Subsidence Management Plan as Appendix B. Implementation of the Work Plan began in 2015.

Pursuant to the Subsidence Management Plan, each year, Watermaster has produced the *Annual Report of the Ground-Level Monitoring Committee (GLMC)* that contains the results of ongoing monitoring efforts, interpretations of the data, and recommended adjustments to the Subsidence Management Plan, if any. The annual report includes recommendations for Watermaster's ground-level monitoring program for the subsequent fiscal year. The Watermaster publishes the annual reports on its website. The most recent annual report was finalized in October 2019.

Although not specifically described in the 2000 OBMP PEIR, Watermaster has exercised best efforts to arrange for the physical recharge of 6,500 afy of Supplemental Water at the MZ-1 spreading facilities. Although not a party to the Peace II Agreement, Watermaster committed to continue the physical recharge of at least 6,500 afy of Supplemental Water as an annual average through the term of the Peace Agreement (2030).

3.4.3.4.3 OBMPU Project Description

Exhibit 4 shows the implementation actions for PE 4 under the OBMPU, which include continuing to implement Watermaster's Subsidence Management Plan, and adapt it as necessary, and continuing the physical recharge of at least 6,500 afy of Supplemental Water as an annual average through the term of the Peace Agreement.

The Chino Basin will always be susceptible to the future occurrence of land subsidence and ground fissuring, so Watermaster will continue to implement the Subsidence Management Plan pursuant to PE 4, which includes:

- Conducting the ground-level monitoring program pursuant to the Subsidence Management Plan and the recommendations of the GLMC. The monitoring program includes the monitoring of groundwater pumping, recharge, groundwater levels, aquifer-system deformation, and vertical and horizontal ground motion across the western portion of the Chino Basin. The then-current description of the ground-level monitoring program is always included in each Annual Report of the GLMC [third bullet below]).

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[15] Chino Basin Watermaster. (2015). *Work Plan, Develop a Subsidence-Management Plan for the Northwest MZ-1 Area.* July 23, 2015.
http://www.cbwm.org/docs/engdocs/Land%20Subsidence/20150724%20-%20Chino%20Basin%20Subsidence%20Management%20Plan%202015/FINAL_CBSMP_Appendix_B.pdf

- Convening the GLMC annually to review and interpret the data from the ground-level monitoring program.
- Preparing annual reports of the GLMC that include recommendations for changes to the monitoring program. The annual report describes recommended activities for the monitoring program for the future fiscal year(s) in the form of a proposed scope-of-work, schedule, and budget. The recommended scope-of-work, schedule, and budget is run through Watermaster's budgeting process for revisions (if needed) and approval. The final scope-of-work, schedule, and budget for the upcoming fiscal year is included in the final annual report.

A key element of the Subsidence Management Plan is the verification of its protective nature against land subsidence and ground fissuring in the Chino Basin. This verification is accomplished through continued monitoring, testing, and reporting by the GLMC, and revision of the Subsidence Management Plan when appropriate. In this sense, the Subsidence Management Plan is adaptive. The GLMC will make these recommendations within its annual reports and prepare a draft revised Subsidence Management Plan that will be run through the Watermaster process for revisions and/or approval. Upon Watermaster Board approval, the revised Subsidence Management Plan will be submitted to the Court.

A potential recommendation of the Subsidence Management Plan for Northwest MZ-1 is conducting wet-water and/or in-lieu recharge methods that will result in a net increase in recharge. Interim work performed in Northwest MZ-1 to support the development of a subsidence management plan for this area[16] suggests that land subsidence could be reduced or abated if recharge in Northwest MZ-1 is increased by at least 20,000 afy, pumping is decreased by at least 20,000 afy, or some combination of both totaling about 20,000 afy. Exhibit 13 is a time-series chart of groundwater pumping, wet-water recharge, and land subsidence (represented as negative vertical ground motion) in Northwest MZ-1 from 1978-2019. Recent pumping in Northwest MZ-1 has decreased significantly: 2017-2019 pumping averaged about 12,000 afy compared to about 19,000 afy since the implementation of the OBMP (2001-2016), a reduction of about 7,000 afy. The reduced pumping is mainly due to water quality issues. Additionally, recent wet-water recharge in Northwest MZ-1 has increased: 2017-2019 recharge averaged about 15,000 afy compared to about 9,000 afy since the implementation of the OBMP (2001-2016), an increase of about 6,000 afy. Exhibit 13 shows that these recent decreases in pumping and increases in recharge, totaling about 13,000 afy, appear to coincide with reduced rates of land subsidence in Northwest MZ-1. This suggests that reduced pumping and/or increased recharge can abate land subsidence in Northwest MZ-1. If the Subsidence Management Plan for Northwest MZ-1 recommends a combination of reduced pumping and wet-water recharge to abate ongoing land subsidence, the pumpers in this area who elect to reduce pumping in accordance with the plan may have difficulty in fully utilizing their water rights with existing infrastructure.

Under the OBMPU, facilities may be needed to: (1) relocate pumping from Northwest MZ-1 to MZ-2 and/or MZ-3, (2) replace some of their pumping with surface or recycled water as a form of in-lieu recharge, (3) facilitate increased wet-water recharge, or (4) a combination of some or all of the above. The operation of these facilities would result in increased groundwater levels that would impact the state of Hydraulic Control; thus, facilities and operations would be needed to ensure that Hydraulic Control is maintained.

[16] Chino Basin Watermaster. 2017. *Task 3 and Task 4 of the Work Plan to Develop a Subsidence Management Plan for the Northwest MZ-1 Area: Development and Evaluation of Baseline and Initial Subsidence-Management Alternatives*.

The facilities and/or improvements to existing facilities envisioned under the OBMPU to address land subsidence are listed below and are shown on Exhibit 14.

- Constructing up to 10 wells in MZ-2 and MZ-3 to relocate up to 25,000 afy of pumping from MZ-1 to MZ-2 and/or MZ3.
  - Depth of a new well could range between 500 and 1,000 feet.
  - The average area of disturbance of a well site is anticipated to be half an acre or less.
- Constructing improvements to the WFA Agua de Lejos treatment plant to increase its capacity by up to 25,000 afy and the increase in use of imported water purchased from Metropolitan Water District of Southern California by up to 25,000 afy. Some of the surface water supplied could be obtained through TVMWD and its Miramar treatment plant.[17]
- Constructing up to 15 ASR wells in Northwest MZ-1 and Central MZ-1 to increase wet-water recharge capacity in MZ-1 by up to 25,000 afy. This would require improvements to the WFA Agua de Lejos treatment plant to increase its capacity by up to 25,000 afy and the increase in use of imported water purchased from Metropolitan Water District of Southern California by up to 25,000 afy. Some of the surface water supplied could be obtained through TVMWD and its Miramar treatment plant. [18]
  - Depth of a new ASR wells could range between 500 and 1,500 feet.
  - The average area of disturbance of a well site is anticipated to be half an acre or less.
  - Constructing conveyance facilities to convey the supplemental water to the ASR wells and to convey produced water to end users.
  - Constructing improvements to wastewater treatment plants if recycled water is injected into ASR wells (described in Section 3.3.3.5.3).
  - The expected location of ASR wells is north of Highway 60 in MZ-1.
- Implementing a combination of the facilities and operating concepts to achieve an overall net increase in recharge of 25,000 afy.
- Expanding the existing Chino Desalter capacity by up to 2,000 afy by adding new wells in the Chino Creek wellfield area and expanding the Chino-I and/or Chino-II treatment capacity (see facilities in Section 3.3.3.7.3).

As shown in Exhibit 5, some of these facilities help achieve the objectives of PE 8/9, because these facilities that provide additional recharge capacity in MZ-1 and pumping capacity in MZ-2/3 can be used to implement Storage and Recovery programs.

3.4.3.5 Program Element 5. Develop and Implement Regional Supplemental Water Program

3.4.3.5.1 Objectives

The 2000 OBMP included PE 5—*Develop and Implement Regional Supplemental Water Program*—to improve regional conveyance and the availability of imported and recycled waters throughout the basin. Through the OBMPU process it was determined that the objective of PE 5 remains the same.

3.4.3.5.2 2000 OBMP Project Description and Implementation Progress

The regional supplemental water program, as described in the 2000 OBMP PEIR, consisted of expanding the IEUA's recycled water distribution system for recycled water reuse and importing

[17] Note that this project is also discussed under PE 2.
[18] Some of the new ASR wells that will be constructed for PE 2 can be used for PE 4.

potable water from the Bunker Hill Basin for direct use through the expansion of the Baseline Feeder.[19]

Watermaster and the IEUA have aggressively pursued programs to improve water supply reliability through the implementation of PEs 2, 3, and 5. Since 2000, the IEUA has constructed and operated a recycled water conveyance system throughout the basin, enabling it to provide recycled water to its member agencies for direct reuse and indirect potable reuse. The IEUA owns and operates four wastewater treatment facilities: Regional Plant No. 1 (RP-1), Regional Plant No. 4 (RP-4), Regional Plant No. 5 (RP-5), and the Carbon Canyon Water Reclamation Facility (CCWRF). Recycled water produced by these plants is used for direct reuse, groundwater recharge (indirect potable reuse), and discharged to Chino Creek or Cucamonga Creek, which are tributaries to the Santa Ana River. Historically, the IEUA's operating plan has prioritized the use of recycled water as follows: (1) to meet the IEUA's discharge obligation to the Santa Ana River (17,000 afy), (2) to meet direct reuse demands for recycled water, and (3) to recharge the remaining recycled water. Exhibit 15 shows the location of the IEUA's treatment plants, discharge points to surface water, recharge facilities receiving recycled water, and recycled water distribution pipelines for direct use deliveries.

Although recycled water had been reused since the 1970s, the growth of the IEUA's recycled water reuse programs started in 1997, and in 2005 the OBMP enabled the IEUA's recycled water reuse program to be aggressively expanded. When the OBMP was completed in 2000, the IEUA was recharging about 500 afy of recycled water and utilizing about 3,200 afy for non-potable direct uses. The incorporation of Watermaster and the IEUA's maximum benefit SNMP (refer to P.34) into the Basin Plan in 2004 triggered the ability to rapidly increase recycled water reuse. Over the last five years, the annual direct reuse of recycled water ranged from 17,000 afy to 24,600 afy and averaged 20,600 afy. And, the annual recycled water recharge ranged from 10,800 to 13,900 afy and averaged 13,000 afy.

The recycled water provided by the IEUA has replaced a like amount of groundwater and imported water that would have otherwise been used for non-potable purposes. Much of the post-2000 increase in supplemental water storage in the Chino Basin is attributable to the increased availability and recharge of recycled water.

3.4.3.5.3 OBMPU Project Description

Recycled Water Reuse

Exhibit 4 shows the implementation actions for PE 5 under the OBMPU, which include maximizing recycled water reuse and establishing or expanding future recycled water planning efforts to maximize the reuse of all available sources of recycled water.

The IEUA is continuing to expand its recycled-water distribution system and recharge facilities throughout the Chino Basin for direct non-potable reuses and recharge. Growth is still occurring in the Chino Basin and will result in additional wastewater flows to the IEUA's treatment plants and an increase in recycled water production. The new recycled water will be used to meet part of the demand created by urban growth.

The facilities and/or improvements to existing facilities to maximize recycled water reuse envisioned under the OBMPU are listed below and shown on Exhibit 16.

[19] Note that the Baseline Feeder was not specifically identified as an implementation action in the 2000 OBMP Implementation Plan and has not been implemented.

- Constructing an advanced water treatment plant.[20] The area expected to be disturbed by the construction and operation of the plant is 10-20 acres. The location of the treatment plant is currently unknown and it could be collocated at an existing IEUA Water Reclamation Plant (WRP). This facility was previously evaluated in the 2017 FMP PEIR and data will be brought forward into this document.
- Expanding the recycled water distribution systems for indirect potable reuse by constructing up to 100,000 lineal feet (LF) of pipelines of various diameters in the shaded regions shown on Exhibit 16.
- Conducting direct potable reuse (DPR) that will require the construction of the advance water treatment plant described in the first bullet and conveyance facilities to move the product water to the potable system, preferably using existing potable water line(s) within the general area.
- Acquiring surplus recycled water supplies from other entities and constructing conveyance facilities to distribute the water to the Chino Basin. IEUA has evaluated one specific program for transfer of recycled water from Pomona to the Montclair Basins area.

As shown in Exhibit 5, some of these facilities help achieve the objectives of PE 7 by removing salts from the basin through advanced treatment of recycled water.

Water Reliability
Exhibit 4 shows the implementation actions for PE 5 under the OBMPU, which include maximizing recycled water reuse and establishing or expanding future integrated water resources planning efforts to address water supply reliability for all Watermaster Parties.

As described above (see Table 3.1), the total water demand of the Chino Basin Parties is projected to grow from about 290,000 afy in 2015 to about 420,000 afy by 2040, an increase of about 130,000 afy. The projected growth in water demand by the Appropriative Pool Parties drives the increase in aggregate water demand as some Appropriative Pool Parties are projected to serve new urban water demands created by the conversion of agricultural and vacant land uses to urban uses. A similar challenge was observed during the development of PEs 3 and 5 in the 2000 OBMP. Each of the water sources available to the Chino Basin Parties listed has its limitations:

- The ability to produce groundwater from the Chino Basin is limited by current basin management challenges, such as ongoing land subsidence in MZ-1 and parts of MZ-2, pumping sustainability issues in the JCSD and CDA well field areas, and water quality.
- The challenges to the use of imported water include the reliability of the individual imported sources and infrastructure required to convey it to the Chino Basin and the local capacity to treat it if required for municipal use
- The reliability of non-Chino Basin groundwater supplies depends on water quality, water rights, and infrastructure to convey the supplies to a Parties' water system.
- The reliability of local surface water supplies depends on the hydrologic characteristics of the individual supplies, water quality, water rights, and infrastructure to convey it from points of diversion to a Party's water system.
- The challenges to maximizing the reuse of recycled water include the timing of recycled water demands, recycled water availability, and complying with the maximum benefit SNMP and water quality regulations.

[20] Advanced water treatment refers to the following waste water treatment processes: RO, membrane filtration, or functionally equivalent processes, and potentially ultraviolet (UV) disinfection.

In addition to the challenges to specific water sources, climate change is expected to result in higher temperatures, longer dry periods, and shorter more intense wet periods, which is expected to affect the availability and management of all water supply sources. For example, shorter more intense precipitation periods are expected to result in reduced recharge, and longer dry periods are expected to result in reduced imported water supplies (as occurred with State Water Project supplies in the recent drought from 2013 to 2016). And, many of the challenges are interrelated and compounding. For example, the reliability of imported water (and other non-groundwater supplies) not only affects the imported water supply but also the groundwater supplies that are dependent on imported water for blending and replenishment.

The facilities and/or improvements to existing facilities to improve water reliability envisioned under the OBMPU are listed below and shown on Exhibit 17.

- Constructing conveyance facilities to enable the distribution of future imported water supplies. The amount of new pipeline needed has not yet been defined.
- Constructing an east to west 75,000-lineal foot regional pipeline across the northern part of the Chino Basin to enable the efficient conveyance and distribution of basin waters to Chino Basin water users; and or the construction of improvements to existing conveyance facilities to accomplish the same.
- Constructing a north-to-south 45,000-lineal foot regional pipeline across the eastern part of the Chino Basin to enable the efficient conveyance and distribution of basin waters to Chino Basin water users; and or the construction of improvements to existing conveyance facilities to accomplish the same.

As shown in Exhibit 5, the new supplemental supplies and facilities contribute to achieving the objectives of PE 8/9.

3.4.3.6 Program Element 6. Develop and Implement Cooperative Programs with the Regional Board and Other Agencies to Improve Basin Management

<u>3.4.3.6.1 Objectives</u>

The 2000 OBMP included PE 6—*Develop and Implement Cooperative Programs with the Regional Board and other Agencies to Improve Basin Management*—to assess water quality trends in the basin, to evaluate the impact of OBMP implementation on water quality, to determine whether point and non-point contamination sources are being addressed by water quality regulators, and to collaborate with water quality regulators to identify and facilitate the cleanup of soil and groundwater contamination. Through the OBMPU process, the objective of PE 6 was refined to: to perform routine and coordinated water quality monitoring to characterize water quality in the Chino Basin so that there is adequate information to ensure that contamination sources are being addressed by water quality regulators and to help address compliance with new and increasingly stringent drinking water regulations for emerging contaminants established by the DDW.

<u>3.4.3.6.2 2000 OBMP Project Description and Implementation Progress</u>

The cooperative programs to improve basin management, as described in the 2000 OBMP PEIR, consisted of working cooperatively with the Regional Board and other agencies, to identify water quality anomalies through monitoring, assist in determining sources of the water quality anomalies, and establish priorities for clean-up.

Through its own monitoring at private wells and dedicated monitoring wells and the monitoring efforts of others, Watermaster reports on water quality trends and findings in several reports, including the State of the Basin Reports, which are prepared and submitted to the Court every two years.

In 2003, the Watermaster convened a Water Quality Committee to coordinate many of the activities performed under PE 6. The Committee met intermittently through 2010. The main activities of the Water Quality Committee included investigations to characterize and address point and non-point sources of groundwater contamination in the Chino Basin and collaboration with the Regional Board in its efforts to facilitate the cleanup of groundwater contamination. Some of the significant groundwater quality investigations performed under the guidance of the committee included: the characterization of groundwater contamination in MZ-3 near the former Kaiser Steel Mill and Alumax facilities, tracking studies on the source and extent of the Chino Airport plume; identification of sources and responsible parties for the South Archibald plume; and the identification of the sources of legacy perchlorate contamination in groundwater throughout the basin. The investigations were coordinated through the Water Quality Committee for the Chino Airport and South Archibald plumes and contributed to the definitive identification of responsible parties and the issuance of cleanup and abatement orders by the Regional Board.

Since 2010, Watermaster has continued to perform monitoring for contaminants related to point-source and non-point source contamination, to assist the Regional Board with the investigation and regulation of point source contaminant sites in the Chino Basin, and to prepare status reports on the monitoring and remediation of point-source contaminant sites in the basin. Periodic status reports have been prepared for: the Chino Airport and South Archibald plumes[21] and the General Electric (GE) Test Cell plume, the GE Flatiron plume, the former Kaiser Steel Mill Facility plume, the CIM plume, the Stringfellow plume, and the Milliken Landfill plume. Updated delineations of the spatial extent of the plumes in the Chino Basin are prepared every two years by Watermaster and are included in the plume status reports and biennial State of the Basin Reports.

Currently, the responsible parties for the Chino Airport plume and South Archibald plume are initiating remedial actions that include the use of the Chino Basin Desalters describe in PE 3 (see Section 3.3.4.3) for pumping and treating the contaminated groundwater associated with these plumes. This use of the Chino Basin Desalters as a mutually beneficial project was recognized in the 2000 OBMP Implementation Plan as a potential management strategy and provides cost sharing benefits to all involved parties. Additionally, the CDA and IEUA have acquired over $85 million in federal and state grant funds for the Chino Basin Desalter Phase III expansion project that is planned to be used for the remediation of the Chino Airport and South Archibald plumes.

3.4.3.6.3 OBMPU Project Description

Exhibit 4 shows the implementation actions for PE 6 under the 2020 OBMP which include re-convening the water quality committee, developing and implementing an initial emerging contaminants monitoring plan, preparing a water quality assessment of the Chino Basin to evaluate the need for a *Groundwater Quality Management Plan* and preparing a long-term emerging contaminants monitoring plan.

Pursuant to the PE 6 implementation plan, Watermaster will continue to perform the following to ensure that point-source contamination is being adequately addressed: monitor water quality at monitoring wells and private wells within the basin and collect data from others to support the quantification of point-source contaminant plumes; prepare updated delineations of the plume

[21] Status reports for the Chino Airport and South Archibald plumes were prepared monthly in 2013; quarterly from 2014-2017; and semi-annually effective in 2018. Status reports for the other plumes and sites are prepared annually effective 2018.

extents for the biennial State of the Basin Reports; track and report on the status of plumes and remediation in the recurrent plume status reports; and other ad-hoc investigations needed to support the Regional Board in their efforts to address groundwater contamination. Watermaster will continue to support the Regional Board and other parties to identify and implement mutually beneficial projects for addressing groundwater contamination cleanup and identify funding opportunities to help pay for the cleanup efforts. Watermaster will continue to characterize and report on water-quality in the biennial State of the Basin Reports using data collected for the PE 1 Groundwater Quality Monitoring Program. Watermaster will also develop a *Groundwater Quality Management Plan* as a proactive and basin-wide approach to address emerging contaminants to prepare the Parties for addressing compliance with new and increasingly stringent drinking water regulations, defined by the DDW.

Exhibits 18 through 21 show the most current characterization of regulated drinking water contaminants in the Chino Basin. Exhibit 18 shows the locations of active municipal supply wells and symbolizes them based on the number of regulated drinking water contaminants that have been detected in exceedance of their respective primary maximum contaminant levels (MCLs). Of the 141 recently active municipal supply wells, 45 have at least one drinking water contaminant, 17 wells have two contaminants, 14 have three contaminants, five have four contaminants, and five have five contaminants. The wells with regulated drinking water contaminants are primarily located in the southern (south of the 60 freeway) and western (west of Euclid Avenue) areas of the Basin. Exhibits 19 through 21 show the spatial distribution of the maximum observed nitrate, 1,2,3-TCP, and perchlorate concentrations – the three most prevalent contaminants in the Chino Basin – at all wells for the five-year period of 2014 to 2018.

Several of the drinking water contaminants found in the Chino Basin are associated with known point-source contaminant discharges to groundwater. Characterizing and understanding point-sources contaminant sites are critical to the overall management of groundwater quality to ensure that Chino Basin groundwater remains a sustainable resource. Watermaster closely monitors the status, decisions, cleanup activities, and monitoring data pertaining to point-source contamination within the Chino Basin. The following is a list of the regulatory and voluntary point-source contaminant sites in the Chino Basin that are tracked by Watermaster, the locations of which are shown in Exhibit 22.

Table 3.4
POINT-SOURCE SITES TRACKED BY WATERMASTER

Site Name	Constituents of Concern	Order
Alumax Aluminum Recycling Facility	TDS, sulfate, nitrate, chloride	Regional Board Cleanup and Abatement Order 99-38
Alger Manufacturing Co	volatile organic chemicals (VOCs)	Voluntary Cleanup and Monitoring
Chino Airport	VOCs	Regional Board Cleanup and Abatement Orders 90-134, R8-2008-0064, and R8-2017-0011
California Institution for Men	VOCs	Voluntary Cleanup and Monitoring (No Further Action status, as of 2/17/2009)
GE Flatiron Facility	VOCs and hexavalent chromium	Voluntary Cleanup and Monitoring
GE Test Cell Facility	VOCs	Department of Toxic Substances Control (DTSC) Consent Order Docket No. 88/89-009CO. Regional Board Status of Open-Verification Monitoring

Site Name	Constituents of Concern	Order
Former Kaiser Steel Mill	TDS, total organic carbon (TOC), VOCs	Regional Board Order No. 91-40 Closed. Kaiser granted capacity in the Chino II Desalter to remediate
Former Kaiser Steel Mill – CCG Property	chromium, hexavalent chromium, other metals, VOCs	DTSC Consent Order 00/01-001
Milliken Sanitary Landfill	VOCs	Regional Board Order No. 81-003
Upland Sanitary Landfill	VOCs	Regional Board Order No 98-99-07
South Archibald Plume	VOCs	Stipulated Settlement and Cleanup and Abatement Order No. R8-2016-0016 to a group of eight responsible parties
Stringfellow Site National Priorities List (NPL) Superfund Site	VOCs, perchlorate, N-nitrosodimethylamine (NDMA), trace metals	United States Environmental Protection Agency (USEPA) Records of Decision (RODs): R09-83/005, R09-84/007, R09-87/016, and R09-90/048.

Finally, tracking emerging contaminants that are being considered for regulation and performing monitoring to characterize their occurrence in the Chino Basin will help to identify and plan for optimal solutions to manage groundwater quality for drinking water supply. Exhibit 23 shows the occurrence of two emerging contaminants that may be regulated in the future – the per-and polyfluoroalkyl substances (PFAS) compounds — perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS) — in groundwater and some blending sources for the recycled water recharge in the Chino Basin as of March 2019, based on all monitoring performed since 1998. The exhibit shows that the majority of wells in the Chino Basin have not been sampled for PFOA and/or PFOS. The 30 wells in the Chino Basin that have been sampled for PFOA and PFOS were tested using the laboratory detection limits four and eight times higher than the current notification levels (NLs) for these emerging contaminants. Monitoring of recycled water recharge blending sources shows that many of the sources sampled have detectable concentrations of PFOA and PFOS, and many are above the NLs. The EPA and the DDW have both indicated that they are moving forward with the process to adopt MCLs for PFOA and PFOS in the near future. The occurrence of PFOA and PFOS in Chino Basin groundwater as of March 2019 is not well characterized at concentrations equivalent to or below the current NLs, and there are recharge water sources with concentrations of PFOA and PFOS above the NLs.

The facilities and/or improvements to that may be implemented based on the recommendations of the *Groundwater Quality Management Plan* to address the contaminants described herein and other contaminants are listed below.

- Constructing water treatment facilities at well sites or at sites near to wells to treat groundwater to meet drinking water standards for local use.
    - The area expected to be disturbed by the construction and operation of the treatment facilities would be limited to existing well sites if the plant is located at an existing well site; and will range from about 0.5 acres to 2 acres per facility for new treatment facilities located near a well site. The locations of these treatment facilities are currently unknown.
- Constructing regional water treatment facilities taking groundwater from multiple wells to treat groundwater to meet drinking water standards for local use and or export.
    - The area expected to be disturbed by the construction and operation of the treatment facilities is expected to be less than 20 acres per facility. The locations of the treatment facilities are currently unknown.

- Constructing improvements at existing treatment facilities to treat contaminated groundwater to drinking water standards for local use.
- Constructing conveyance facilities to convey the untreated groundwater to the treatment facilities and to convey treated water from the treatment facilities to water users.

3.4.3.7 Program Element 7. Develop and Implement Salt Management Plan

<u>3.4.3.7.1 Objectives</u>

The 2000 OBMP included PE 7— *Develop and Implement Salt Management Plan* — to characterize current and future salt and nutrient conditions in the basin and to subsequently develop and implement a plan to manage them. Such a management strategy was necessary to address historical salt and nutrient accumulation from agricultural operations and to support the aggressive expansion of recycled water recharge and reuse envisioned in PEs 2 and 5. Through the OBMPU process, the objective of PE 7 was refined to: implement, and periodically update, the maximum benefit SNMP. The maximum benefit SNMP is a Regional-Board-approved management program incorporated into the Water Quality Control Plan for the Santa Ana River Basin (Basin Plan) to monitor, characterize, and address current and future salt and nutrient conditions in the Chino Basin. The maximum benefit SNMP enables the implementation of the recycled water recharge program in PE 2 and the direct reuse of recycled water in PE 5.

<u>3.4.3.7.2 2000 OBMP Project Description and Implementation Progress</u>

The salt management plan, as described in the 2000 OBMP PEIR, consisted of computing a salt budget for existing conditions as the baseline, developing alternatives to reflect the OBMP Implementation, and computing the salt budget for these alternatives to ensure that Watermaster reduced the salt loading then projected to occur in the Chino Basin.

In 2002, recognizing that implementing the recycled water reuse program would require large-scale treatment and mitigation of salt loading under the then-current antidegradation objectives for TDS and nitrate defined in the Basin Plan, Watermaster and the IEUA petitioned the Regional Board to establish a maximum benefit-based SNMP that involved (1) defining a new groundwater quality management zone that encompasses the northern parts of MZ-1, MZ-2 and MZ-3 called the Chino-North GMZ, (2) establishing TDS and nitrate objectives for the Chino-North GMZ[22] to numerically higher values than established for MZ-1, MZ-2 and MZ-3 to enable maximization of recycled water reuse and (3) committing to a program of salt and nutrient management activities and projects (“maximum benefit commitments”) that ensure the protection of beneficial uses of the Chino-North GMZ and downgradient waters (the Santa Ana River and the Orange County GMZ). The technical work performed to support the maximum benefit SNMP proposal included the development and use of an analytical salt budget tool to project future TDS and nitrate concentrations in the Chino-North GMZ with and without the maximum benefit SNMP. The maximum benefit SNMP was incorporated into the Basin Plan by the Regional Board in January 2004.

Implementation of the maximum benefit SNMP is a regulatory requirement of the Basin Plan. The requirement is also incorporated into Watermaster and the IEUA’s recycled water recharge program permit (R8-2007-0039) and the IEUA’s recycled water discharge and direct reuse permit (R8-2015-0021; NPDES No. CA 8000409). There are nine maximum benefit commitments included in the Basin Plan and recycled water permits:

[22] The Chino-North GMZ has a maximum-benefit TDS objective of 420 mgl and is a combination of the Chino-1, Chino-2, and Chino-3 antidegradation GMZs that have lower TDS objectives, ranging from 250 to 280 mgl.

1. The development and implementation of a surface-water monitoring program
2. The development and implementation of a groundwater monitoring program
3. The expansion of the Chino-I Desalter to 10 mgd and the construction of the Chino-II Desalter with a design capacity of 10 mgd
4. The additional expansion of desalter capacity to a total capacity of 40 mgd pursuant to the OBMP and the Peace Agreement
5. The construction of the recharge facilities included in the Chino Basin Facilities Improvement Program
6. The management of recycled water quality to ensure that the IEUA agency-wide, 12-month running average wastewater effluent quality does not exceed 550 milligrams per liter (mgl) for TDS and 8 mgl for total inorganic nitrogen (TIN)
7. The management of the basin-wide, volume-weighted TDS and nitrate concentrations of artificial recycled, storm, and imported waters to concentrations that are less than or equal to the maximum benefit objectives as a five-year rolling average
8. The achievement and maintenance of the Hydraulic Control of groundwater outflow from the Chino Basin, specifically from the Chino-North GMZ, to protect the water quality of the Santa Ana River and downstream beneficial uses
9. The triennial recalculation of ambient TDS and nitrate concentrations of the Chino Basin GMZs

These commitments are all activities that were planned to be implemented in the 2000 OBMP through implementation actions within PEs 1, 2, 3, 5, and 7.

Watermaster and the IEUA are also required to prepare an annual report to the Regional Board on the status of implementation of the maximum benefit commitments, including reporting of annual data collected through the monitoring program and assessments of compliance with the groundwater and recycled water-quality limits defined in the SNMP. If the maximum benefit commitments are not implemented to the Regional Board's satisfaction, the antidegradation-based objectives would apply for regulatory purposes. The application of the antidegradation objectives would result in a finding of no assimilative capacity for TDS and nitrate in the Chino-North GMZ, and the Regional Board would require mitigation for all recycled water discharges to Chino-North that exceeded the antidegradation objectives retroactively to January 1, 2004. The retroactive mitigation for past discharges would be required to be completed within a ten-year period, following the Regional Board's finding that the maximum benefit commitments were not met.

Watermaster has prepared and submitted annual reports to the Regional Board every year since 2005. As of the most recent annual report for CY 2018, Watermaster and the IEUA remain in compliance with all requirements of the maximum benefit commitments.[23]

3.4.3.7.3 OBMPU Project Description

Exhibit 4 shows the implementation actions for PE 7 under the OBMPU, which include (1) completing the 2020 update of TDS and nitrate projections to evaluate compliance with maximum benefit SNMP and, if necessary, based on the outcome, preparing a plan and schedule to implement a salt offset compliance strategy,[24] (2) continuing to implement the maximum-benefit

[23] WEI. (2019). *Optimum Basin Management Program Chino Basin Maximum Benefit Annual Report 2018*. April 2019.

[24] The management actions for achieving compliance with the metrics once they are exceeded could include, but are not limited to: desalting recycled water to reduce TDS concentrations, increasing the recharge of low-TDS supply

SNMP pursuant to the Basin Plan (see list below), and (3) starting in 2025 and every five years thereafter, updating water quality projections to evaluate compliance with the maximum-benefit salt and nutrient management plan.

Compliance with the maximum benefit commitments is an ongoing requirement of the Basin Plan. The ongoing actions to implement the maximum benefit SNMP as currently defined in the Basin Plan, and thus PE 7, will include:

- Implementing monitoring program and reporting requirements
- Maintaining Hydraulic Control through operation of the Chino Basin Desalters and other means, as necessary
- Increasing and maintaining desalter pumping at 40,000 afy
- Continuing storm and imported water recharge program to comply with recycled water recharge dilution requirements
- Complying with recycled water TDS and TIN limitations
- Computing ambient water quality every three years
- Constructing treatment and/or salt offset facilities if one or more of the compliance limits are exceeded.

There are three water-quality limitations and associated compliance metrics established in the maximum benefit SNMP. When these metrics are exceeded, Watermaster and the IEUA must develop a plan and schedule to achieve compliance. The limitations, compliance metrics, and compliance actions are summarized in Exhibit 24.

The management actions for achieving compliance with the metrics once the action level is reached could include, but are not limited to: desalting recycled water to reduce TDS concentrations, increasing the recharge of low-TDS supply sources (storm or imported waters), additional desalting of high-TDS groundwater as a salt offset or combination of the above.

With the exception of the ambient nitrate concentration of the Chino-North GMZ, which has exceeded the objective of 5.0 mgl since it was established in 2004, none of the other TDS and nitrate limitations have been exceeded. That said, the ambient TDS and nitrate concentrations in the Chino-North GMZ continue to increase due to legacy agricultural activities and current irrigation practices regardless of water source. The current ambient TDS and nitrate concentrations are 360 and 10.3 mgl, respectively. Based on the rate of increase of the ambient TDS concentration since 1997, which has been about three mgl per year, the maximum benefit objective of 420 mgl is not expected to be exceeded until about 2035.

More recently, the TDS concentration of recycled water has approached the compliance metric defined in commitment number 6. During the 2012 to 2016 drought, the 12-month running-average IEUA agency-wide TDS concentration in recycled water approached the 545 mgl action limit that would require the IEUA and Watermaster to submit a water-quality improvement plan and schedule. In analyzing the available data, the IEUA determined that the primary drivers for the increasing recycled water TDS concentration were the increase in the TDS concentration of the water supplies used by its member agencies and an increase of the TDS waste increment[25]

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sources (storm or imported waters), or additional desalting of high-TDS groundwater as a salt offset. It could also include: new regulatory compliance metric based on a longer-term averaging period for recycled water TDS

[25] The TDS concentration of wastewater that is treated at a given reclamation plant is higher than the source water TDS concentration served in the sewer shed tributary to the reclamation plant. The TDS "waste increment" is the increase in the TDS concentration, measured in mgl, that occurs due to indoor water use activities (showering, toilet

due to indoor water conservation. Similarly, drought conditions also threaten the ability to comply with the recycled water recharge dilution requirements. During drought conditions there is: a reduction in the amount of high-quality stormwater recharge, limited or no availability of imported water for recharge, an increase in the TDS concentrations of imported water, and a concomitant increase in the TDS concentrations of the recycled water. Not only are the two primary sources of low-TDS recharge water less available during drought periods, but the source water quality of municipal water supplies is also higher in TDS due to increases in imported water TDS and indoor water conservation practices. It is expected that future droughts, the duration and frequency of which could be exacerbated by climate change, could potentially threaten compliance with the existing permit limits.

Although the 12-month running-average IEUA agency-wide TDS concentration declined from the 2015 peak before reaching the 545 mgl action limit, it was an important indicator that the TDS concentration of recycled water is likely to approach or exceed the recycled water action limit during the next prolonged dry period and trigger the planning for recycled water quality improvements. In May 2017, recognizing the potential cost of implementing recycled water quality improvements for what might be only short-term exceedances of the action limit, Watermaster and the IEUA petitioned the Regional Board to consider updating the maximum benefit SNMP to incorporate a revised compliance metric for recycled water TDS and nitrate specifically to allow a longer-term averaging period. The Regional Board agreed that an evaluation of the recycled water compliance metric is warranted and directed Watermaster and the IEUA to develop a technical scope of work to demonstrate the potential impacts of the revised compliance metric.

The primary objectives of the technical work to support the maximum benefit SNMP and permit updates are: to develop and use an updated groundwater solute-transport model to evaluate the TDS and nitrate concentrations of the Chino Basin (e.g. a new salt-budget tool), to define alternative salinity management scenarios, and to project the future TDS and nitrate concentrations in the Chino Basin for each scenario. The results will be used to work with the Regional Board to develop a regulatory compliance strategy that potentially includes a new compliance metric based on a longer-term averaging period for recycled water TDS, contingent on the ongoing modeling and analysis efforts. The regulatory compliance strategy can also address any projected challenges in complying with the recycled water dilution requirements. The work began in September 2017 and is expected to be completed in 2021.

The Regional Board has indicated that in accepting any proposal to modify the recycled water compliance metrics, it will require Watermaster and the IEUA to add a new maximum benefit commitment to the Basin Plan that involves updating the TDS and nitrate projections every five years. Thus, proactive planning to achieve compliance is a required ongoing activity under PE 7 and the maximum benefit SNMP.

If compliance with the maximum benefit limitations were to become an issue, and/or if changes in basin management and operation as described herein impact the ability to maintain Hydraulic Control, the facilities and/or improvements to that may need to be implemented are listed below and shown on Exhibit 25.

- Constructing a new treatment train at one or more IEUA recycled water treatment plants (RP-1, RP-4, RP-5, CCWRF) to reduce the TDS concentration of recycled water to levels that ensure compliance with IEUA and Watermaster's recycled water permits. The area

flushing, laundry, etc.). Indoor water conservation measures that reduce indoor water use volumes can increase the TDS waste increment because the same mass of TDS additions from the indoor activities are being disposed of with a smaller volume of water.

disturbed during construction of the new treatment train capacity expansion would be limited to the disturbed areas at IEUA's existing recycled water treatment plants.

- Constructing an advanced water treatment plant (see Section 3.4.3.5.3).
- Expanding the existing Chino Desalter capacity by up to 6,000 afy by adding new wells and either expanding the Chino-I and/or Chino-II treatment capacity or constructing a new treatment facility and product water conveyance facilities.
    - The area disturbed during construction of the treatment plant capacity expansion would be limited to the disturbed areas at the existing Chino Desalter treatment plant sites.
    - Developing 6,000 afy of new groundwater supply
        - Constructing up to eight wells in the existing desalter well field areas to increase pumping up to 6,000 afy to maintain Hydraulic Control and to mitigate reductions in net recharge and Safe Yield caused by land subsidence management and Storage and Recovery Programs. Well depths could range from 250 to 1,000 feet. The average area of disturbance of a well site is anticipated to be half an acre or less.
        - Acquiring up to five existing wells in in the Chino Creek well field area that, in aggregate, can pump up to 2,000 afy to maintain Hydraulic Control.
        - Combination of constructing new and acquiring existing wells up to a pumping capacity of 6,000 afy to maintain Hydraulic Control and to mitigate reductions in net recharge and Safe Yield caused by land subsidence management and Storage and Recovery Programs.
        - Constructing brine management facilities.
- Construct a new treatment plant, new wells, and new conveyance facilities to accomplish the same effect as described above to expand the existing Chino Desalter system capacity by up to 6,000 afy.

3.4.3.8 Program Element 8. Develop and Implement Groundwater Storage Program and Program Element 9. Develop and Implement Conjunctive Use Program

3.4.3.8.1 Objectives

The objectives of PE 8 are (1) to develop and implement a storage management plan that prevents overdraft, protects water quality, and ensures equity among the Parties, and (2) to periodically recalculate Safe Yield. The objective of PE 9 is to develop Storage and Recovery Programs that benefit all Parties in the basin and ensure that basin waters and storage capacity are put to maximum beneficial use without causing MPI to any producer or the basin. Through the OBMPU process, the objectives of PEs 8 and 9 have been refined to:

- PE 8: Implement, and periodically update, a storage management plan that: (1) is based on the most current information and knowledge of the basin, (2) prevent unauthorized overdraft, (3) prioritize the use of storage space to meet the needs and requirements of the lands overlying the Chino Basin and of the Parties over the use of storage space to store water for export.
- PE 9: Support the development and implementation of Storage and Recovery Programs in the Chino Basin that provide defined benefits to the Parties and the basin.

3.4.3.8.2 2000 OBMP Project Description and Implementation Progress

The groundwater storage management program described in the 2000 OBMP PEIR considered, four potential methodologies for setting storage limits that included: (1) deducting rising water losses from planned storage for all local storage accounts and for the storage accounts of non-Judgment parties, (2) establishing arbitrary storage limits, such as a multiple of the Safe Yield,

(3) limiting storage based on the time that water is in storage, such as not being able to store water for more than 10 years and (4) limiting storage based on total storage and the time that water is in storage. Under all methodologies, Parties would sell their current year underproduction to Watermaster or other parties to the Judgment each year if their local storage accounts are full, and the water would then be used to meet Replenishment Obligations. The conjunctive use programs, as described in the 2000 OBMP PEIR, consisted of (1) completing the existing short-term conjunctive-use project, (2) seasonal peaking program for in-basin use and dry-year yield program to reduce the demand on various water supply entities to 10 percent of normal summer demand (requiring 150,000 acre-ft of storage), (3) dry-year yield export program, and (4) seasonal peaking export program.

Watermaster has developed rules and regulations, standard storage agreements, and related forms pursuant to the Judgment and Peace Agreement. There are three types of storage agreements that result in five types of storage accounts: Excess Carryover, Local Supplemental-Recycled, Local Supplemental-Imported, Pre-2000 Quantified Supplemental, and Storage and Recovery. An Excess Carryover account includes a Party's unproduced rights in the Safe Yield (Safe Yield for Overlying Non-Agricultural Pool Parties and Operating Safe Yield for Appropriative Pool Parties) and Basin Water acquired from other Parties. A Local Supplemental Water account includes imported and recycled water that is recharged by a Party and similar water acquired from other Parties. A Storage and Recovery account includes Supplemental Water and is intended to produce a "broad and mutual benefit to the Parties to the Judgment" (§5.2(c)(iv)(b) of the Peace Agreement). Watermaster tracks the puts, takes, losses, and end of year storage totals for all of these storage accounts, and reports on this accounting in the annual assessment process. The losses assessed by Watermaster are based on the amount of water in managed storage (excluding Carryover) and they offset the increase in groundwater discharge to the Santa Ana River from the Chino Basin attributable to managed storage (excluding Carryover). Watermaster also assesses losses due to evaporation on the puts when water is recharged in spreading basins.

In evaluating applications for storage agreements, Watermaster must conduct an investigation to determine if the water stored and recovered under a proposed storage agreement has the potential to cause MPI to a Party or the basin. If Watermaster determines that implementation of the proposed storage agreement has the potential to cause MPI, the applicant must revise its application and demonstrate that there will be no MPI, or Watermaster must impose conditions in the storage agreement to ensure there is no MPI. Watermaster cannot approve a storage agreement that has the potential to cause MPI.

The Parties, amongst themselves, are actively involved in water transfers of annual unproduced rights in the Safe Yield and water in their storage accounts. Watermaster has an application and review process for transfers that is similar to the storage agreement application process. Transfers are one way that the Parties recover water held in storage accounts.

A final SSC of 500,000 af was established in the 2000 OBMP Implementation Plan. The water occupying the SSC includes Carryover, and water stored in Excess Carryover and Local Supplemental Storage accounts. Water stored for Storage and Recovery Programs also occupies space in the SSC. Water in Carryover, Excess Carryover, local supplemental, and Storage and Recovery accounts are referred to collectively as "managed storage."

Watermaster keeps a record of the puts, takes, losses, and end of year storage totals for all of these storage accounts, and reports on this accounting in the annual assessment process. Starting in 2005, pursuant to the Peace Agreement and OBMP Implementation Plan, Watermaster began assessing losses in stored water at a rate of two percent per year. In February 2016, Watermaster changed the loss rate to 0.07 percent per year, based on the estimated groundwater discharge from the Chino-North GMZ to the Santa Ana River (a finding of the Safe Yield recalculation).

The only active Storage and Recovery Program in the basin is the Metropolitan Dry-Year Yield Program (DYYP). The DYYP can store up to 100,000 af with maximum puts of 25,000 afy and maximum takes of 33,000 afy. The DYYP Storage and Recovery agreement provides that puts and takes can exceed these values if agreed to by Watermaster (as was done in fiscal years 2018 and 2009, respectively). The agreement that authorizes the DYYP will expire in 2028.

Exhibit 26 summarizes the amount of water in managed storage by the Parties and for the DYYP. The total volume of water in managed storage as of June 30, 2019 was about 549,200 af, which includes about 46,000 af stored in the DYYP account. As previously stated, and described below, in 2017, the IEUA adopted an Addendum to the Peace II SEIR that provided a temporary increase in the SSC to 600,000 af through June 30, 2021 and required Watermaster to update the storage management plan.

3.4.3.8.3 OBMPU Project Description

Exhibit 4 shows the implementation actions for PE 8/9 under the OBMPU, which include (1) complete and submit to the Court the 2020 Safe Yield Recalculation, (2) completing and submitting to the Court the 2020 Storage Management Plan (SMP), (3) developing a *Storage and Recovery Master Plan* to support the design of optimized storage and recovery programs that are consistent with the 2020 Storage Management Plan and provide the Watermaster with criteria to review, condition, and approve applications in a manner that is consistent with the Judgment and the Peace Agreement, (4) assessing losses from storage accounts based on the findings of the 2020 Safe Yield Recalculation, (5) updating the Storage Management Plan, (6) perform safe yield recalculation every 10 years (2030, 2050), and (7) updating the storage loss rate following each recalculation of Safe Yield (2030, 2040, 2050) and during periodic updates of the SMP.

2020 Storage Management Plan

The 2000 OBMP storage management plan is based on fixed storage volumes (e.g. the OSR and the Safe Storage), and its technical basis is not supported by new information available after the storage management plan was first developed. Review of the new information developed pursuant to the OBMP since 1999 indicates that it is possible to expand the use of storage space beyond that anticipated in the 2000 OBMP and Peace Agreement implementation plan. This new information includes: an updated hydrogeologic conceptual model; 20 years of intensive monitoring of basin operations (not available in 1999), including monitoring the basin response to managed storage activities; and groundwater model-based projections of the basin response to future management plans where the managed storage exceeded the SSC of 500,000 af. Re-operation, which over time will reduce the amount of Basin Water in storage by 400,000 af, was not accounted for in the 2000 OBMP storage management plan.

New information developed since 1999 suggests that the use of managed storage to meet future desalter and other Replenishment Obligations could cause potential MPI and other adverse impacts: it has the potential to exacerbate land subsidence and pumping sustainability challenges, impact net recharge and Safe Yield, increase groundwater discharge through the CCWF and cause a loss of Hydraulic Control, and change the direction and speed of the contaminant plumes. Thus, Watermaster initiated a process to update the OBMP storage management plan to enable increased storage by the Parties and to include features that will ensure there is no MPI to a Party or the basin caused by the conjunctive-use activities of the Parties and Storage and Recovery Programs.

The *Storage Framework Investigation*[26] (SFI) was completed in 2018 to provide technical information required to update the 2000 OBMP storage management plan that is included in the Peace Agreement implementation plan. In the SFI, future projections of the use of managed storage[27] were estimated and evaluated for potential MPI and other adverse impacts[28]. The SFI projected that MPI and other adverse impacts could occur due to the implementation of prospective Storage and Recovery Programs and described potential facilities and operating concepts that, if implemented, would minimize potential MPI and adverse impacts. The results of the SFI, together with the *Final 2020 Storage Management Plan White Paper,* [29] were used to inform the development of the *2020 Storage Management Plan* (SMP).

The Watermaster completed the 2020 SMP in December 2019. The 2020 SMP includes the following provisions regarding the use of storage space in the basin:

- An aggregate amount of 800,000 af is reserved for the Parties' conjunctive-use activities (includes Carryover, Excess Carryover, and Supplemental Accounts) and Metropolitan's DYYP. This amount is referred to as the "First Managed Storage Band" (FMSB).
- The managed storage space between 800,000 and 1,000,000 af is reserved for Storage and Recovery Programs.
    - Storage and Recovery Programs that utilize the managed storage space above 800,000 af will be required to mitigate potential MPI and other adverse impacts as if the 800,000 af in the FMSB is fully used.
    - Renewal or extension of the DYYP agreement will require the DYYP to use storage space above the 800,000 af of the FMSB.

The 2020 SMP includes the following provisions specific to the Parties and Storage and Recovery Program:

- Watermaster will prioritize the use of spreading basins to satisfy Watermaster's recharge and Replenishment Obligations over the use of spreading basins for other uses.
- With regard to the storage management activities of the Parties:
    - Watermaster acknowledges transfers or leases of water rights and water held in managed storage (hereafter transfers) from Parties that are situated such that they pump groundwater outside of MZ-1 to Parties that pump in MZ-1 have the potential to cause potential MPI.
    - The reduction in net recharge caused by storage in the FMSB is an adverse impact, and Watermaster considers this adverse impact to be mitigated by the prospective calculation of Safe Yield.
- With regard to the Storage and Recovery Programs:
    - Puts and takes should be prioritized to occur in MZ-2 and MZ-3 to avoid new land subsidence and interfering with land subsidence management in MZ-1, to minimize pumping sustainability challenges, to minimize the impact of Storage and

[26] WEI. (2018). *Storage Framework Investigation – Final Report*. Prepared for the Chino Basin Watermaster. October 2018.
[27] Managed storage refers to water stored by the Parties and other entities and includes Carryover, Local Storage, and Supplemental Water held in storage accounts by the Parties and for Storage and Recovery Programs.
[28] Adverse impacts include and are not limited to reductions in net recharge and Safe Yield and increases in groundwater discharge from the Chino North GMZ to the Santa Ana River that have the potential to cause a loss of Hydraulic Control.
[29] WEI. (2019). *Final 2020 Storage Management Plan White Paper*. Prepared for the Chino Basin Watermaster. July 2019.

Recovery operations on solvent plumes, to preserve the state of Hydraulic Control, and to take advantage of the larger and more useful storage space in MZ-2 and MZ-3.

- Watermaster will evaluate Storage and Recovery Program impacts, assess MPI (including, but not limited to land subsidence, pumping sustainability, water quality, shallow groundwater, and liquefaction), and define mitigation requirements. The Storage and Recovery Program applicants must develop mitigation measures acceptable to Watermaster and include them in the Storage and Recovery Program agreements.
- Watermaster will evaluate the Storage and Recovery Program, assess adverse impacts (including, but not limited to reductions in net recharge and Safe Yield and an increase in the groundwater discharge from the Chino North GMZ to the Santa Ana River contributing to a loss of Hydraulic Control), and define mitigation requirements. The Storage and Recovery Program applicants must develop mitigation measures acceptable to Watermaster and include them in the Storage and Recovery Program agreements.
- Watermaster will periodically review current and projected basin conditions and compare this information to the projected basin conditions prepared in the evaluation of the Storage and Recovery Program applications; compare the projected Storage and Recovery Program operations to actual Storage and Recovery Program operations; make findings regarding the efficacy of related mitigation of MPI and other adverse impact requirements and measures in the Storage and Recovery Program storage agreements; and based on its review and findings, require changes in the Storage and Recovery Program agreements to mitigate MPI and adverse impacts.

- Watermaster will modify the existing *Form 8 Local Storage Agreements* to be consistent with an “evergreen agreement” paradigm and establish that the evergreen agreements will be valid for the duration of the Peace Agreement and will be automatically adjusted upon Watermaster’s approval of each subsequent Assessment Package so long as the cumulative amount of water in storage is less than the quantity reserved for the Parties’ conjunctive-use operations and Metropolitan’s DYYP (cumulatively, the FMSB) and Watermaster has made no finding that MPI is threatened to occur as a result of the increase in the quantity of water in storage.
- Watermaster will periodically review and update the SMP at a frequency of no less than once every five years, when the Safe Yield is recalculated, when it determines a review and update is warranted based new information and/or the needs of the Parties or the basin, and at least five years before the aggregate amount of managed storage by the Parties is projected to fall below 340,000 af.

The facilities and/or improvements to existing facilities envisioned under the OBMPU to conduct a Storage and Recovery Program within the SMP are listed below and shown on Exhibit 27.

- Constructing up to 40 new ASR wells and/or 30 new conventional production wells in MZ-2/3 north of Highway 60 to increase pumping and recharge capacity by up to 70,000 afy to implement Storage and Recovery programs. [30]
  - Depth of new wells could range between 500 and 1,500 feet.
  - The average area of disturbance of a site is anticipated to be half an acre or less.

[30] Some of the new conventional pumping wells and ASR that will be constructed for PE 2 and 4, respectively, can be used for PE 8/9.

- Constructing conveyance and treatment facilities to supply water to the ASR wells for recharge.
- Constructing conveyance and treatment facilities to supply the recovered stored groundwater from the ASR wells to municipal and industrial users within and outside of the Chino Basin.

- Expanding the Chino Desalters or construction of new functionally equivalent facilities (see Section 3.3.4.7.3) to mitigate increases in groundwater discharge from the Chino North GMZ to the Santa Ana River caused by a Storage and Recovery Program that has the potential to cause a loss of Hydraulic Control. These same facility improvements could be used to mitigate the loss of net recharge and Safe Yield caused by a Storage and Recovery Program.
- Constructing facility improvements at active groundwater remediation projects to mitigate the effects of Storage and Recovery Program on the remediation projects (see Section 3.3.4.6.3). These improvements could include construction of additional wells and raw water conveyance facilities, treatment plant expansions and other treatment modifications and product water facilities
- Constructing replacement wells and or modification to existing wells to mitigate loss of pumping capacity caused by a Storage and Recovery Program.

3.5 SUMMARY OF ALL FACILITIES

The 2020 OBMPU and related documents is a revision of the implementation plans included in the Peace and Peace II Agreements and incorporates the new activities in the 2020 OBMPU and ongoing activities from the 2000 OBMP. The 2020 OBMPU IP puts forth a series of one-time actions and ongoing management processes, organized by Program Elements (PE), that help achieve the goals of the OBMP and set the framework for the next 30 years of basin-management activities. This section of the Project Description is intended to outline the specific facilities and specific types of facilities and/or improvements that could result from the implementation of the OBMPU, and to provide operational and construction scenarios for OBMPU related equipment and facilities. These facilities are listed in Exhibit 5 and are outlined in further detail below.

The implementation of the facilities proposed as part of the OBMPU consists of construction and operation of the various facilities that will be summarized below. These potential facilities are separated into four project categories: (1) Project Category 1: Well Development and Monitoring Devices; (2) Project Category 2: Conveyance Facilities and Ancillary Facilities; (3) Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands; and, (4) Desalters and Water Treatment Facilities. Below are general descriptions of the facilities and operations proposed as part of the OBMPU.

Project Category 1: Well Development and Monitoring Devices
This Project Category includes the development of ASR, injection, pumping, groundwater level monitoring, and groundwater quality wells, associated well housing, as well as monitoring devices such as flow meters and extensometers. The proposed wells and monitoring devices will be installed throughout the Chino Basin.

Well development includes up to 60 new ASR wells, 10 wells relocated to adjust up to 25,000 afy of pumping, and 8 new wells to expand desalter capacity for a total of 78 new wells. In addition, the OBMPU anticipates reconstruction and/or modification of up to 5 wells to mitigate loss of pumping capacity, and destruction and replacement of 5 wells. This category also includes the development of 100 monitoring wells, for a total of up to 178 wells, which serve the varying purposes listed above and outlined below. The monitoring devices proposed as part of the OBMPU include up to 300 flow meters, up to 100 transducer data loggers, and 3 extensometers installed in existing private wells.

Project Category 2: Conveyance Facilities and Related Infrastructure
This category includes the construction of up to 550,000 LF of new pipelines, booster pump stations, reservoirs and minor appurtenances whose number, locations and capacities are presently unknown. The proposed conveyance facilities and ancillary facilities would be implemented throughout the entire Chino Basin.

Project Category 3: Storage Basins and Recharge Facilities and Storage Bands
This Project Category includes the construction of up to 310 acres of new storage basins—several locations for which are within existing facilities, improvements to existing storage basin(s), 200 acres of flood MAR facilities, new MS4-compliance facilities, and expansion of the maximum storage space (safe storage capacity) to be used within the Chino Basin from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af within this range of storage. The specific locations of the new and existing storage basins are described in the Project Description, above; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

Project Category 4: Desalters and Water Treatment Facilities
The projects proposed under this category are: upgrades at IEUA's existing Treatment Plants (previously analyzed in IEUA's 2017 FMP PEIR), a new advanced water treatment plant (previously analyzed in IEUA's 2017 FMP PEIR), improvements to the WFA Agua de Lejos Treatment Plant, upgrades to the Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities. Impacts related to the facilities thoroughly analyzed as part of the IEUA's 2017 FMP PEIR are assumed to be part of the baseline and will not be analyzed further as part of the OBMPU.

Operational Scenarios
As part of this summary of all facilities, possible operational scenarios are provided as part of the discussion of each type of facility. The future modes of operation (activities) are provided to enable evaluation of the direct and indirect environmental impacts that could result from OBMPU implementation. These are representative scenarios that describe a range of plausible future operations and activities, based on the past activities carried out in the Chino Basin to implement the original OBMP Program Elements, and are a reasonable estimate of future operations based on the information available at this time.

Construction Scenarios
Secondarily, as part of this summary of all facilities, estimated construction scenarios are provided as part of the discussion of each type of facility. The purpose of the following general construction scenarios is to assist the reviewer to understand how the proposed facilities will be installed, the amount of time required for their construction, and potential direct and indirect environmental impacts. This information also provides essential data for making the program air quality impact forecasts using the most current CalEEMod emission forecast model.

For many of the facilities anticipated by the OBMPU, the types, configuration and exact location of future specific projects that may be constructed in support of the OBMPU have not been determined. However, there are a few specific Projects that have been identified at a sufficient level of detail that a location has been pinpointed in which a specific project will be developed. For instance, the CIM Storage Basin Project is proposed to be located at the CIM; however, the Project specifications at that site have not yet been identified. For the remaining projects listed below, it is possible to foresee some of the infrastructure that is likely to be constructed and to project the reasonably foreseeable direct and indirect impacts that would result from construction and operation of the infrastructure. Impacts associated with specific future projects could be evaluated in second-tier CEQA evaluations to determine if the actual impacts fall within the impacts forecast by this analysis, or require subsequent CEQA evaluations and determinations. These evaluations would be conducted under Section 15162 of the State CEQA Guidelines.

3.5.1 Project Category 1: Well Development and Monitoring Devices

3.5.1.1 Monitoring Wells and Devices: Facilities Summaries & Operational Scenarios

Groundwater-Level Monitoring, Wells (PE1). Under the OBMPU, up to 100 new monitoring wells will be constructed to monitor groundwater levels in the Chino Basin, which would meet the objective of **PE1** by providing the information necessary to support the implementation of all other OBMP PEs and to evaluate their performance.

Groundwater-Level Monitoring, Wells: Summary of Facilities
The average area of disturbance of each well site is anticipated estimated to be half an acre or less, while the total depth of each well is anticipated to range from 50 to 1,500 feet. The precise location of the proposed new wells is unknown at this time, beyond that they will be located within the Chino Basin, shown on Exhibit 6. The new monitoring wells will be equipped with pressure transducer data-loggers that measure and record groundwater levels.

Groundwater-Level Monitoring, Wells: Operational Scenario
Wells will be visited by a field technician on a monthly to quarterly frequency. There is negligible energy consumption in obtaining groundwater levels from a monitoring well.

Groundwater-Quality Monitoring (PE1)**.** Under the OBMPU, up to 100 new monitoring wells will be constructed to monitor groundwater quality in the Chino Basin, which would meet the objective of **PE1** by providing the information necessary to support the implementation of all other OBMP PEs and to evaluate their performance. The groundwater quality monitoring wells and groundwater level monitoring wells can be utilized interchangeably for both types of monitoring activities.

Groundwater-Quality Monitoring: Summary of Facilities
The average area of disturbance of each well site is estimated to be half an acre or less while the total depth of each well is anticipated to range from 50 to 1,500 feet and four- to six-inches in diameter. Additionally, the ongoing groundwater-quality monitoring program will continue. The precise location of the proposed new wells is unknown at this time, beyond that they will be located within the Chino Basin, shown on Exhibit 7. A subset of the new monitoring wells will be equipped with probes that measure and record water-quality parameters.

Groundwater-Quality Monitoring: Operational Scenario
Wells will be visited by a field technician on a monthly to quarterly frequency. There is negligible energy consumption in obtaining groundwater quality samples from a monitoring well.

Groundwater-Production Monitoring (PE1). Under the OBMPU, Watermaster's ongoing groundwater-production monitoring program will continue, which would meet the objective of **PE1** by providing the information necessary to support the implementation of all other OBMP PEs and to evaluate their performance. Up to 300 in-line flow meters will be installed in existing private wells to accurately estimate production by the Agricultural Pool.

Groundwater-Production Monitoring: Summary of Facilities
The flow meters are installed on the existing well discharge pipe. The proposed/possible locations for the in-line flow meters on Agricultural Pool wells are shown on Exhibit 8.

Groundwater-Production Monitoring: Operational Scenario
Agricultural pumping wells will be visited by a field technician on a monthly to quarterly frequency to read up to 300 in-line flow meters. There is negligible energy consumption for accessing and reading the meter.

Surface Water and Climate Monitoring (PE1)
Under the OBMPU, Watermaster and IEUA's ongoing surface-water and climate monitoring efforts will continue, which would meet the objective of **PE1** by providing the information necessary to support the implementation of all other OBMP PEs and to evaluate their performance. Surface-water discharge and stage measuring equipment and meteorological monitoring equipment will be installed in and near stormwater drainage and recharge facilities, respectively, to improve the accuracy of surface-water diversion and recharge measurements.

Surface Water and Climate Monitoring: Summary of Facilities
The surface-water discharge equipment will consist of flow meters, data loggers and communications equipment that measure flow rate at discrete points along creeks, and inlets and outlets of existing recharge facilities, store the measure data and transmit it to IEUA's SCADA system. The surface-water stage monitoring equipment will consist of pressure transducer data-loggers and communications equipment that measure and record water levels, store the measurement data and transmit it to IEUA's SCADA system. The meteorological monitoring equipment will be similar to the California Irrigation Management Information System (CIMIS) stations and include data loggers and communications equipment. The potential locations for the installation of surface-water and climate monitoring devices are shown on Exhibit 9.

Surface Water and Climate Monitoring: Operational Scenario
Flow and stage measuring equipment and meteorological monitoring equipment will be visited by a field technician on a monthly to quarterly frequency to download data and service the equipment. The monitoring equipment will likely be powered by a solar panel and connected to a telemetry system.

Ground-Level Monitoring, Extensometers (PE1)
Under the OBMPU, Watermaster's ongoing ground-level monitoring program will continue, which would meet the objective of **PE1** by providing the information necessary to support the implementation of all other OBMP PEs and to evaluate their performance. Up to three new extensometers will be constructed in the areas prone to subsidence with total extensometer depths of up to 1,500 feet.

Ground-Level Monitoring, Extensometers: Summary of Facilities
An extensometer is a sophisticated monitoring facility consisting of piezometers and extensometers. As the aquifer system undergoes various stresses due to groundwater production

and recharge, the facility monitors the hydraulic response of the aquifer system at the piezometers and the mechanical response of the aquifer system at the extensometers. The facility is equipped with pressure transducers to measure water levels in the piezometers, linear potentiometers to measure the vertical aquifer-system deformation at the extensometers, and data loggers to record the data at frequent intervals (e.g. 15 minutes). The possible locations of the extensometers are within the Areas of Subsidence concern shown on Exhibit 10.

Ground-Level Monitoring, Extensometers: Operational Scenario
Wells with extensometers will be visited by a field technician on a monthly to quarterly frequency to download data and service the equipment. The extensometer will likely be powered by a solar panel and connected to a telemetry system.

3.5.1.2 Monitoring Wells: Construction Scenario

The OBMPU estimates that about up to 100 monitoring wells will be installed to monitor groundwater levels and groundwater quality, which can be used interchangeably for both purposes. It is assumed that up to 20 monitoring wells may be developed in a single year. Development of each new monitoring wells during a given year will require the delivery and set up of the drilling rig. It is anticipated these wells will be drilled at different times and the drilling equipment will be transported to and from the sites on separate occasions. For the purposes of this evaluation, it is forecast that delivery of the drilling equipment 20 times in a year will result in twenty 50-mile round-trips.

Monitoring well development has essentially the same construction impacts as production well development, except it does not require test pumping, discussed under **3.5.1.4 ASR, Injection and Pumping Wells**, below.

3.5.1.3 Monitoring Devices: Construction Scenario

The installation of up to 300 in-line flow meters and up to 100 transducer data loggers will require one round-trip per device, or a total of 400 round trips over an undefined period of time. These trips are anticipated to occur within the Basin, as such the average round-trip length to install one in-line flow meter is anticipated to be 40 miles. For analysis purposes up to 100 monitoring devises are assumed to be installed in a single year.

The OBMPU anticipates the installation of an unknown number of flow and stage measuring equipment and meteorological monitoring equipment in and near storm water drainage and recharge facilities. The installation of each device is anticipated to require one round-trip, for an estimated total of 50 round-trips. These trips are anticipated to occur within the Basin, as such the average round-trip length to install one monitoring device is anticipated to be 40 miles.

The installation of up to three extensometers will require 7 round-trips, and 7 days to complete the installation of each device. For each of the 7 days required for extensometer installation, it is anticipated that average trip length will be about 40 miles in length because these trips are anticipated to occur within the Basin. A truck mounted crane could be used to lower the cable extensometer anchor weight into the well casing.

3.5.1.4 ASR, Injection and Pumping Wells: Facilities Summaries & Operational Scenarios

Aquifer Storage and Recovery (ASR) Wells (PE2, PE4, PE5, PE7, PE8/9)

ASR wells are used to inject treated supplemental water into the Basin and to pump the injected groundwater on some periodic schedule. In order to meet the objectives of **PE2** (Exhibit 12), the OBMPU envisions constructing up to 60 ASR wells to increase supplemental water recharge capacity by up to 70,000 afy. Some of the new ASR wells that will be constructed for PE 2 can be used for **PE's 4, 7 and 8/9**; as such the total number of ASR wells anticipated to be constructed under these assumptions is 60. Specific to **PE 2,** 5 ASR wells are required to meet the objectives of **PE2** when combined with the ASR wells that meet the objectives of **PE's 4, 7 and 8/9** below. This is illustrated in Table 3.5 below. In the case that recycled water is injected into the Chino Basin, an ASR well would be replaced by one dedicated injection well plus one conventional extraction well. Some of the new ASR wells that will be constructed for PE 2 can be used for **PE's 4, 7 and 8/9**.

In order to address the objectives of **PE4** (Exhibit 14), the OBMPU envisions constructing up to 15 ASR wells in Northwest MZ-1 and Central MZ-1 to increase wet-water recharge capacity in MZ-1 by up to 25,000 afy. This will require improvements to the WFA Agua de Lejos treatment plant to increase its capacity by up to 25,000 afy and the increase in use of imported water purchased from Metropolitan Water District of Southern California by up to 25,000 afy. Some of the surface water supplied could be obtained through TVMWD from its Miramar treatment plant. As previously stated these ASR wells would also meet the objectives of **PEs 2, 5, 7 and 8/9**.

In order to address the objectives of **PE8/9** (Exhibit 27), the OBMPU envisions constructing up to 40 new ASR wells and/or 30 new conventional production wells in MZ-2/3 north of Highway 60 to increase pumping and recharge capacity by up to 70,000 afy to implement Storage and Recovery programs. The ASR wells also meet the objectives of **PEs 2, 4 and 5**.

For the purposes of this analysis, the OBMPU assumes that <u>a total of 60 ASR wells</u> would be installed to accomplish the objectives of **PEs 2, 4, 5, 7, 8/9**—which are outlined under Section 3.4, Project Characteristics above. Because conventional wells and ASR wells require the same construction techniques (discussed below under **3.5.1.5 Wells (ASR, Injection, and Pumping): Construction Scenario**), this analysis assumes that up to 60 ASR wells will be installed, though there is a potential that conventional wells developed to either increase pumping and recharge capacity (**PE 8/9**) or to install injection/extraction well pairs; regardless no more than 60 wells will be developed to serve ASR objectives related to **PEs 2, 4, 5, 7, 8/9**.

Table 3.5
ASR WELLS PER PROGRAM ELEMENT

PE (Location)	Number of Wells
PE 4 with potential use for PE 2 (MZ 1 north of Hwy 60)	15
PE 8/9 with potential use for PE 2 (MZ 2/3 north of Hwy 60)	40
Additional wells for PE 2 (north of Hwy 60)	5
TOTAL	**60**

<u>ASR Wells: Facilities Summary</u>

- The depth of a new ASR wells could range between 500 and 1,500 feet.
- The average area of disturbance of a well site is anticipated to be half an acre or less.
- The installation of the proposed ASR wells or injection/extraction well pairs includes the construction of conveyance facilities to: (1) convey the supplemental water to the ASR wells and to convey pumped groundwater to end users; and/or (2) to supply water to the ASR wells for recharge and to convey pumped groundwater to end users. Conveyance facilities include pipelines, booster stations, reservoirs and related appurtenances.
    - The length of pipelines for **PE2** is estimated to be about 150,000 LF. The location of associated booster stations, reservoirs and minor appurtenances are currently unknown.
    - The length of pipelines for **PE4** is estimated to be about 37,500 LF. The location of possible associated booster stations, reservoirs and related appurtenances are unknown.
    - The estimated length of pipelines for **PE8/9** is estimated to be about 100,000 LF. The location of associated booster station, reservoirs and related appurtenances are unknown.
- The primary physical difference between ASR and production wells is that different valve options are installed according to the type of well.
- The installation of the proposed ASR wells includes the construction of improvements to wastewater treatment plants if recycled water is injected into an ASR well (described under Wastewater Treatment Facilities below). In the case that recycled water is injected into the Chino Basin, an ASR well would be replaced by one dedicated injection well plus one conventional extraction well.
- The expected location of ASR wells is north of Highway 60 in MZ-1, MZ-2 and MZ-3.

<u>ASR Wells: Operational Scenario</u>

ASR wells under **PE2** and **PE 4** will be operated seasonally, and pumping is expected to occur during the summer at an assumed utilization rate of 80 percent, while recharge is expected for the remainder of the year at an assumed utilization rate of 70 percent. The wells will pump up to 12,500 afy at an assumed rate of 1,200 gpm. Recharge for ASR wells (or injection wells) will occur by gravity flow and will require no pumping to place the water in the aquifer. Energy consumption is expected to range between 300 and 650 kWh per af.

<u>ASR Wells and Conventional Wells Incorporated into Watermaster Storage Management Plan: Operational Scenario</u>

Based on the 2018 Storage Framework Investigation (SFI) (WEI, 2018) and the 2020 Storage Management Plan (SMP) (WEI, 2019), the Chino Basin Parties will utilize up to 720,000 af of groundwater storage for their individual conjunctive-use activities. Metropolitan Water District of Southern California (Metropolitan) currently has a storage agreement that allows them to operate a Storage and Recovery Program (Dry-Year Yield Program or DYYP) in the Chino Basin through 2028. Collectively, the Chino Basin Parties and Metropolitan will use up to 800,000 af through 2030 and the amount of storage space used by Chino Basin Parties for their individual conjunctive-use activities is projected to gradually decline for several decades thereafter. The 2018 SFI analyzed the basin response from the Chino Basin Parties' use of storage space up to 700,000 af and the conjunctive-use by Storage and Recovery Programs from 700,000 af to 1,000,000 af (including Metropolitan's DYYP). Based on the work done in the 2018 SFI, the storage space was divided into two bands: First Managed Storage Band (FMSB) of 800,000 af for use by the Chino Basin Parties and Metropolitan and 200,000 af of storage space between 800,000 af and 1,000,000 af for use by future Storage and Recovery Programs. The 2020 SMP requires that the facilities used to conduct Storage and Recovery programs using the storage space between 800,000 af and 1,000,000 to be located in the Northern parts of MZ2 and MZ3 as shown in Exhibit 27.

The facilities required by the Chino Basin Parties and Metropolitan to conduct their conjunctive-use activities within the FMSB currently exist and they are in operation today. The facilities required to conduct Storage and Recovery Programs using the storage space between 800,000 af and 1,000,000 af consist of a combination of existing facilities (spreading basins, ASR wells and conventional wells) and new facilities. The table below summarizes the range in existing and new facilities required to implement Storage and Recovery Programs that operate in the storage band between 800,000 af and 1,000,000 af. For purposes of this EIR and consistent with the assumptions in the 2018 SFI, the operational cycle of Storage and Recovery Programs consists of four put years, three hold years and three take years.

Table 3.6
RANGE OF EXISTING AND NEW FACILITIES REQUIRED TO IMPLEMENT STORAGE AND RECOVERY PROGRAMS

	2018 SFI			OBMPU PEIR		
	Put and takes (afy)	Number of operating wells	New energy require-ment (kwh)	Put and takes (afy)	Number of operating wells	New energy require-ment (kwh)
Annual put	50,000			50,000		
Existing spreading basin capacity used	29,280		0	0		0
Existing ASR well capacity used	2,740		219,200	0		0
Total existing put capacity used	32,020		219,200	0		0
New ASR well capacity used	17,980	9	1,438,400	50,000	24	4,000,000
Annual take	66,666			66,666		
Take through existing wells	16,667		10,173,066	0		0
Take through new ASR wells	49,999	8	30,517,977	50,000	0	30,518,587
Take through new conventional wells	0	0	0	16,666	6	10,172,455
Total new wells		17			30	
Total energy requirement			42,547,843			44,691,043

For purposes of this environmental document, it is assumed that the entire put will be accomplished with new ASR wells and the take will be accomplished with a combination of new ASR and new conventional wells. Based on the 2018 SFI, the ASR wells (totaling 60 wells) were assumed to have recharge and pumping capacities of 1,800 gpm and 2,300 gpm, respectively.

- During put years the ASR wells would be utilized 70 percent of the time. The energy required to conduct recharge through ASR would occur at treatment plants where imported water is treated prior to injection. The energy required to treat imported water prior to injection is estimated to be about 80 kwh per af based on the treatment energy requirements at the Lloyd Michael and Sand Hill water treatment plant. The annual energy requirement for a put year of 50,000 afy is estimated to be 4,000,000 kwh.

- During take periods, the ASR and conventional wells would be utilized 80 percent of the time. The energy required to pump the groundwater to service pressure is estimated to be about 600 kwh per af. The annual energy requirement for a take year of 66,670 afy is estimated to be 45,000,000 kwh.

MZ 1 Well Relocation (PE4, PE8/9)

In order to address the objectives of **PE4** (Exhibit 14), the OBMPU envisions constructing up to 10 wells in MZ-2 and MZ-3 to relocate up to 25,000 afy of pumping from MZ-1 to MZ-2 and/or MZ3. The new wells could also meet the objectives of **PE 8/9**, the objectives of which are outlined under Section 3.4, Project Characteristics above.

<u>MZ-1 Well Relocation: Facilities Summary</u>

The depth of these new wells could range between 500 and 1,000 feet and the average area of disturbance of a well site is anticipated to be half an acre or less. Conveyance facilities to convey the water pumped from these new wells to MZ1 pumpers include pipelines, booster pump stations, reservoirs and related appurtenances, the capacity and locations of which are presently unknown.

<u>MZ-1 Well Relocation: Operational Scenario</u>

New conventional pumping wells in MZ-2/3 are assumed be operated 80 percent of the time for a maximum of 25,000 afy at a pumping rate of 2,300 gpm. Based on the depth to water in this area, energy consumption would be about 550 kWh per af.

Expand the Existing Chino Desalter Groundwater Pumping (PE7, PE8/9).

The OBMPU envisions expanding the existing Chino Desalter capacity by up to 6,000 afy by adding new wells. This will require constructing up to 8 wells in the existing desalter wellfield areas (shown on Exhibit 25) to increase pumping up to 6,000 afy to maintain Hydraulic Control and to mitigate reductions in net recharge and Safe Yield caused by the implementation of a future land subsidence management and Storage and Recovery Programs. The new wells also meet the objectives of **PE 8/9**, the objectives of which are outlined under Section 3.4, Project Characteristics above.

<u>Expand the Existing Chino Desalter Groundwater Pumping: Facilities Summary</u>

Well depths could range from 250 to 1,000 feet. The average area of disturbance of a well site is anticipated to be half an acre or less. Additionally, the effort to maintain Hydraulic Control in the future may require the Watermaster to acquire up to 5 existing wells in in the Chino Creek well field area that, in aggregate, can pump up to 2,000 afy to maintain Hydraulic Control. This effort is anticipated to be ministerial in nature; however, it is possible that any one of the acquired wells may require redevelopment, removal and disposal of existing pumping equipment, installation of new pumping equipment and well head improvements to enable adequate pumping. Up to 65,000 LF of conveyance would be required to connect the new wells to a treatment facility.

<u>Expand the Existing Chino Desalter Groundwater Pumping: Operational Scenario</u>

New conventional pumping wells in the Chino Desalter area are assumed be operated 80 percent of the time for a maximum of 6,000 afy at pumping rates of ranging from 400 to 2,300 gpm. Energy consumption is expected to range between 300 and 550 kWh per af.

Replacement and Modification to Existing Wells (PE8/9)
The OBMPU envisions constructing replacement wells and/or modification to existing wells to mitigate loss of pumping capacity caused by a future Storage and Recovery Program(s). The location of these wells has not yet been identified; however, the facilities and/or improvements to existing facilities envisioned under the OBMPU to conduct a Storage and Recovery Program within the SMP are listed below and shown on (Exhibit 27). The replacement of and modifications to existing wells would meet the objectives of **PE 8/9**, the objectives of which are outlined under Section 3.4, Project Characteristics above.

<u>Replacement and Modification to Existing Wells: Facilities Summary</u>
For planning purposes, it is anticipated that up to 5 existing wells may be modified, and a maximum of 5 existing wells will be abandoned, destroyed, and replaced with a new well; these replacement wells will not increase the overall number of wells anticipated to be developed as part of the OBMPU as they would ultimately serve the purposes of the Program Elements requiring the development of wells as outlined above. Modification of a well could include deepening the well by drilling, lowering the pump, removal of the existing pumping equipment and replacing it with new pumping equipment and other well head improvements. Replacing a well includes the drilling, well completion, installation of new pumping equipment, site and well head improvements and new conveyance facilities.

<u>Replacement and Modification to Existing Wells: Operational Scenario</u>
New or modified conventional pumping wells in the Chino Desalter area are assumed be operated (utilization rate) 80 percent of the time for a maximum of 6,000 afy at a pumping rate of ranging from 400 to 2,300 gpm. Energy consumption is expected to range between 300 and 550 kWh per af.

CONCLUSION
It is estimated that under the OBMPU a total of 178 wells will be developed to serve the various purposes outlined above, while an additional 5 existing wells will be modified, and 5 existing wells will be abandoned or destroyed. Furthermore, the ASR wells will require construction of conveyance and treatment facilities to supply water to the ASR wells for recharge and to convey pumped groundwater to end users. As such, it is estimated that under the OBMPU a total of 190,000 LF of pipeline will be required to connect wells to the distribution systems, which is inclusive of each of the three types of ASR well development projects required above.

3.5.1.5 Wells (ASR, Injection, and Pumping): Construction Scenario

The OBMPU anticipates the installation of up to 78 new wells, modification of 5 wells, and abandonment/destruction of 5 wells over a period of 30 years; these figures are inclusive of wells proposed to be developed to relocate 25,000 afy of pumping from MZ-1 to MZ-2 and/or MZ3 (10 wells), constructing new wells in the existing desalter well field areas to increase pumping by up to 6,000 afy to maintain Hydraulic Control (8 wells), 60 ASR wells proposed to be developed to increase pumping and supplemental water recharge capacity by up to about 70,000 afy and to increase wet-water recharge capacity in MZ-1 by up to 25,000 afy (note that up to 30 conventional wells could be installed in place of a commensurate number of ASR wells to meet the same objectives; construction for these two types of wells is essentially the same with the exception of a valve required to be installed for ASR wells to manage injection or extraction operations), modification to existing wells to mitigate loss of pumping capacity caused by a Storage and Recovery Program, and destruction of 5 abandoned wells, the presence of which is a threat to groundwater supply and a physical hazard. Installing 78 wells over 30 years can be evaluated based on an average number of wells per year (4 wells) or based on a possible maximum number of wells per year, which for planning purposes will be 10 wells per year. Thus, for analysis purposes it is assumed that a maximum of 10 wells per year may be developed. Development of up to 10 new wells during a given year will require the delivery and set up of the drilling rig at each site. It is anticipated these wells will be drilled at different times and the drilling equipment will be transported to and from the sites on separate occasions. For the purposes of this evaluation, it is forecast that delivery of the drilling equipment 10 times (# of wells anticipated to be drilled in a year) in a year will result in ten 50-mile round-trips for the drill rigs.

ASR well development has essentially the same construction impacts as production well development. The primary physical difference between ASR and production wells is that different valve options are installed according to the type of well.

It is assumed that the average pumping capacity for a new conventional pumping or ASR well will range from 400 to 2,300 gpm depending on the location of the well (see Section 3.6, Summary of Operational Scenarios).

It is anticipated that about five persons will be on a given well site at any one time to support drilling a well: three drillers, the hydrologist inspector, and a foreman. Daily trips to complete the well will average about 15 roundtrips per day, which at various points of construction will include: two roundtrips for drill rigs; between 6 and 12 roundtrips for cement trucks; about 5 trips to deliver pipe; and about 10 trips per day for employees.

For analysis purposes it is assumed that each well would be drilled using the direct rotary or fluid reverse circulation rotary drilling methods. The average area of disturbance of each well site is estimated to be one-half an acre or less. Access to the drilling site for the drilling rig and support vehicles would be from adjacent roadways. Typically, well drilling requires only minimal earth movement and/or grading.

The drilling and development of each well will require drilling to—in most cases—between 250 and 1,500 feet below ground surface (bgs). The proposed schedule for constructing each well would be as follows: drilling, construction, and testing of each well would require approximately six weeks to complete (about 45 days, of which 15 to 20 days would include 24-hour, 7-day a week drill activity). For planning purposes, a construction and testing schedule duration of 60 days per well is assumed to account for unforeseen circumstances (e.g. extreme weather, equipment break downs, etc.) that could affect the drilling and testing schedule. The well casings are expected to be welded and it will be assumed that well development and installation will require a two week use of a diesel generator.

The borehole for the well would be drilled using at least two separate drilling passes. The first pass, or pilot borehole, would be drilled using a 17.5-inch diameter bit to an estimated maximum depth below the ground surface, which would correspond to the top of the consolidated bedrock in the area, or a depth selected by the project hydrologist/hydrogeologist. Upon completion of the geophysical logs, the pilot borehole would be enlarged (reamed) to a diameter of 24 inches to approximately the same depth to accommodate the well casing, screen and filter pack.

Once each well is constructed it would immediately be developed through a process of swabbing and airlifting. During this process, drilling fluids and suspended sediment would be removed from the well. After the drilling fluids are removed along with most of the suspended sediment, the well would be further developed through pumping.

3.5.1.6 Well Destruction

Well Destruction (PE 1)
The objective of **PE 1** under the OBMPU includes continuing the ongoing monitoring and reporting program and developing and updating an *OBMP Monitoring and Reporting Work Plan*, which is considered part of the baseline conditions and is discussed here for completeness. A part of this objective includes destroying abandoned wells due to the threat they pose to the groundwater supply. The presence of improperly abandoned wells is a threat to groundwater supply and a physical hazard. Watermaster staff periodically reviews its database, makes appropriate inspections, consults with well owners, maintains a list of abandoned wells in the Chino Basin, and provides this list to the counties for follow-up and enforcement. Watermaster requests owners of abandoned wells to properly destroy their wells pursuant to the DWR Well Standards (Bulletins 74-81 & 74-90). Under the OBMPU, Watermaster will continue these efforts, though no specific abandoned wells have been identified to be destroyed at this time.

<u>Well Destruction: Summary of Facilities</u>
This includes sealing the upper 20 feet with an impervious sealing material (neat cement, sand-cement grout, concrete, or bentonite clay). In areas where the interchange of water between aquifers occurs, impervious material will be placed opposite the confining formations above and below the producing formations for a distance of 10 feet or more. The remainder of the well shall be filled with suitable fill (clay, silt, sand, gravel, crushed stone, native soils, or mixtures of the aforementioned types). In urban areas, additional requirements must be met. These include: 1) A hole shall be excavated around the well casing to a depth of 5 feet below the ground surface and the well casing removed to the bottom of the excavation; 2) The sealing material used for the upper portion of the well shall be allowed to spill over into the excavation to form a cap; and. 3) After the well has been properly filled, including sufficient time for sealing material in the excavation to set, the excavation shall be filled with native soil.

<u>Well Destruction: Operational Scenario</u>
Watermaster requests owners of abandoned wells to properly destroy their wells pursuant to the DWR Well Standards (Bulletins 74-81 & 74-90). This includes sealing the upper 20 feet with an impervious sealing material (neat cement, sand-cement grout, concrete, or bentonite clay). In areas where the interchange of water between aquifers occurs, impervious material will be placed opposite the confining formations above and below the producing formations for a distance of 10 feet or more. The remainder of the well shall be filled with suitable fill (clay, silt, sand, gravel, crushed stone, native soils, or mixtures of the aforementioned types). In urban areas, additional requirements must be met. These include: 1) A hole shall be excavated around the well casing to a depth of 5 feet below the ground surface and the well casing removed to the bottom of the excavation; 2) The sealing material used for the upper portion of the well shall be allowed to spill over into the excavation to form a cap; and 3) After the well has been properly filled, including sufficient time for sealing material in the excavation to set, the excavation shall be filled with native soil.

3.5.2 <u>Project Category 2: Conveyance Facilities and Ancillary Facilities</u>

3.5.2.1 Recycled and Potable Water Distribution/Conveyance: Summary of Facilities

Indirect Potable Reuse Conveyance Improvements (PE5, PE8/9)
The OBMPU envisions expanding the recycled water distribution system for indirect potable reuse by constructing conveyance facilities that include pipelines, booster pump stations, reservoirs and

minor appurtenances. The general location of these facilities is shown in Exhibit 16. The proposed recycled water conveyance improvements also meet the objectives of **PEs 5 and 8/9**, the objectives of which are outlined under Section 3.4, Project Characteristics, above.

<u>Indirect Potable Reuse Conveyance Improvements: Summary of Facilities</u>
This pipeline project will require ancillary facilities that include booster pump stations, reservoirs and related appurtenances. The number, location and capacities of the proposed conveyance facility improvements are presently unknown; however, it is anticipated that the up to 50,000 LF of pipeline could be constructed underground and within existing road rights-of-ways.

East/West Regional Pipeline (PE5, PE8/9)
The OBMPU envisions constructing an east to west up to 75,000-foot regional pipeline across the northern part of the Chino Basin to enable the efficient conveyance and distribution of supplemental and basin waters to Chino Basin water users; and/or the construction of improvements to existing conveyance facilities to accomplish the same. The proposed regional pipeline also meets the objectives of **PEs 5 and 8/9**, the objectives of which are outlined under Section 3.4, Project Characteristics, above.

<u>East/West Regional Pipeline: Summary of Facilities</u>
This pipeline project will require ancillary facilities that include booster pump stations, reservoirs and related appurtenances. The precise locations, number and capacities of the proposed conveyance facility improvements are unknown, though the alignment envisioned under the OBMPU is shown approximately on Exhibit 17. It is anticipated that the proposed pipeline will be constructed underground and within existing road rights-of-ways.

North/South Regional Pipeline (PE5, PE8/9)
The OBMPU envisions constructing a north-to-south up to 45,000-foot regional pipeline across the eastern part of the Chino Basin to enable the efficient conveyance and distribution of supplemental and basin waters to Chino Basin water users; and or the construction of improvements to existing conveyance facilities to accomplish the same. The proposed regional pipeline also meets the objectives of **PEs 5 and 8/9**, the objectives of which are outlined under Section 3.4, Project Characteristics, above.

<u>North/South Regional Pipeline: Summary of Facilities</u>
This pipeline project will require ancillary facilities that include booster pump stations, reservoirs and related appurtenances. The precise locations, number and capacities of the proposed conveyance facility improvements are unknown, though the alignment envisioned under the OBMPU is shown approximately on Exhibit 17. It is anticipated that the proposed pipeline will be constructed underground and within existing road rights-of-ways.

Groundwater Treatment Conveyance (PE5, PE6, PE8/9)
The OBMPU envisions constructing conveyance facilities to convey untreated groundwater to the treatment facilities and to convey treated water from the treatment facilities to water users, of which the precise location, number and capacities of the proposed conveyance systems is presently unknown. The proposed groundwater treatment conveyance facilities would address the contaminants of concern within the Chino Basin based on the recommendations of the *Groundwater Quality Management Plan.* The construction of new groundwater treatment conveyance facilities has the potential to mitigate the effects of Storage and Recovery Program on the remediation projects, which would meet the objectives of **PE 8/9**, the objectives of which are outlined under Section 3.4, Project Characteristics above. Additionally, the construction of

new groundwater treatment conveyance facilities meets the objectives of **PE 5**, the objectives of which are outlined under Section 3.4, Project Characteristics above.

<u>Groundwater Treatment Conveyance: Summary of Facilities</u>
The precise location, number and capacities of the proposed conveyance systems is presently unknown; however, it is anticipated that the pipelines will be constructed underground and within existing road rights-of-ways. It is anticipated that the treated conveyance systems would be located in proximity to the municipal wells shown Exhibit 18 that have experienced exceedances of DDW MCLs.

CONCLUSION
Approximately 170,000 LF of pipelines and associated conveyance facilities improvements are required to improve the recycled and potable water distribution systems to achieve the OBMPU goals, and to supply groundwater treatment facilities to achieve the OBMPU goals. Note that the proposed pipelines that would support Indirect Potable Reuse were previously analyzed in the 2017 IEUA FMP PEIR and are considered part of the baseline conditions, and are included herein for completeness.

As stated under **3.5.1.4 ASR, Injection and Pumping Wells: Facilities Summaries & Operational Scenarios**, it is estimated that under the OBMPU a total of 190,000 LF of pipeline will be required to connect wells to the distribution systems. Additionally, under **3.5.3.1 Storage and Recharge Facilities: Summary of Facilities and Operational Scenarios**, the conveyance facilities required to increase recharge in the Chino Basin include an estimated 275,000 LF of pipelines.

It is assumed at this time that the total pipeline installed by the OBMPU will be 600,000 LF; this assumes that a nominal amount of pipeline may serve dual purpose for the varying Program Elements of the OBMPU. Of the 600,000 LF of pipeline that would be developed in support of the OBMPU, 50,000 LF were previously analyzed in the 2017 IEUA FMP PEIR. These previously analyzed projects are considered part of the baseline conditions, however, they are summarized here for completeness. As such, the OBMPU will analyze the construction of 550,000 LF of pipeline.

3.5.2.2 Recycled and Potable Water Distribution/Conveyance: Operational Scenario

Once a pipeline is installed, operations do not require any visits unless unforeseen circumstances arise that would require maintenance or repair of the pipelines. In the event of routine maintenance one vehicle trip per maintenance event would be required. Booster pump stations that are incorporated into the project will be operated to convey the water, but the capacity and amounts of water pumped is currently unknown.

3.5.2.3 Conveyance Pipelines: Construction Scenario

An estimated 550,000 LF of pipeline may be installed in support of OBMPU through 2050. The maximum pipe length that would be installed in a single year would be 100,000 LF. It is forecast that most of the pipe will range from 10-inch to 84-inch diameter. It is assumed that an underground utility installation team can install an average of 200-400 LF of potable water pipeline, recycled water line, or storm drains per day. A team consists of the following:

200-400 feet of pipeline installed per day
1 Excavator
1 Backhoe
1 Paver
1 Roller
1 Water truck
Traffic Control Signage and Devices
10 Dump/delivery trucks (40 miles round trip distance)
Employees (14 members per team, 40-mile round-trip commute)

The emissions calculations are based upon the above assumptions for each pipeline installation team. Typically, up to 800 feet of pipeline trench could be excavated, the pipe installed, backfilled, and compacted each day during pipeline installation in undeveloped areas whereas only 400 ft per day can be installed in developed roadways. In either case equipment would be operated for roughly the same portion of the day and daily equipment emissions would be the same, except that undeveloped areas would not require pavement removal and reinstallation.

It is assumed that two teams will be installing pipelines for a maximum total of 800 LF per day (400 x 2 = 800 LF). It is assumed that the proposed pipeline installation will occur for a maximum of 260 days in one calendar year.

Ground disturbance emissions assume roughly half an acre of land would be actively excavated on a given day. It is anticipated that installation of pipeline in developed locations will require the use of a backhoe, crane, compactor, roller/vibrator, pavement cutter, grinder, haul truck and two dump trucks operating 6 hours per day; a water truck and excavator operating 4 hours per day and a paving machine and compacter operating 2 hours per day. Installation of pipeline in undeveloped locations would require the same equipment without the paving equipment (cutter, grinder, paving machine).

The pipelines that would be installed in support of OBMPU are anticipated to use push-on joints (e.g., gasketed bell-and-spigot) that do not require welding. However, the Contractor may occasionally use a portable generator and welder for equipment repairs or incidental uses.

3.5.2.4 Booster Stations: Construction Scenario

Booster stations are required to pump water from areas at a lower elevation within the Basin, to areas located at a higher elevation. The total number of booster stations to be constructed in support of the OBMPU is unknown. It is forecasted that, at each site, no more than 0.5 acre will be actively graded on a given day for site preparation of each booster station. It is anticipated that grading activities will occur over a 5-day period and will require one bull dozer or motor grader operating 8 hours per day, one water truck operating 4 hours per day and one dump truck operating 4 hours per day. Calculations assume five workers will each commute 40 miles round-trip to each work site.

Construction of each pump station will require the delivery and installation of equipment and materials. This phase of construction will result in 6 truck trips on the worst-case day with an average round trip of 20 miles delivering construction materials and equipment (concrete, steel, pipe, etc.). Installation of the booster station will require the use a crane, forklift, backhoe and front loader operating 4 hours per day. Calculations assume five workers will each commute 40 miles round-trip to the work site.

Each booster pump station is assumed to be housed within a block building, and will require a transformer to be installed to handle the electric power delivered to the pumps. The proposed booster pump station building may include a pump room, electric control room, odor control facilities, chemical tanks, and storage room. Construction of the booster pump station would involve installation of piping and electrical equipment, excavation and structural foundation installation, pump house construction, pump and motor installation, and final site completion.

The pump stations proposed are anticipated to be located at sites that have permanent power available for construction, as such a generator is not anticipated to be required for welding required to construct the booster pump stations.

3.5.2.5 Surplus and Supplemental Water Supply Acquisition: Summary of Facilities

Imported Recycled Water Facilities (PE5, PE8/9)
The OBMPU envisions acquiring surplus recycled water supplies from non-IEUA sources and constructing conveyance facilities to import the recycled water. The proposed acquisition and importation of surplus recycled water supplies meets the objectives of **PEs 5 and 8/9**, the objectives of which are outlined under Section 3.4, Project Characteristics above. The facilities and/or improvements to existing facilities to improve water reliability envisioned under the OBMPU are listed below and shown on Exhibit 17.

<u>Imported Recycled Water Facilities: Summary of Facilities</u>
These conveyance facilities include pipelines, booster pump stations, reservoirs and minor appurtenances whose locations, lengths, and capacities are presently unknown. However, it is anticipated that the pipelines will be located below ground and within existing road rights-of-ways.

Constructing Conveyance Facilities to Enable the Distribution of Future Imported Surface Water and Groundwater from Nearby Streams and Groundwater Basins (PE5)
Installation of these conveyance facilities would meet the objectives of **PE5** by maximizing recycled water reuse and establishing or expanding future recycled water planning efforts to maximize the reuse of all available sources of recycled water. This may require new conveyance facilities including pipelines, booster pump stations, reservoirs and related appurtenances whose number, locations and capacities are presently unknown. It is anticipated that the pipelines will be constructed underground and within existing road rights-of-ways.

CONCLUSION
The conveyance facilities required to import non-IEUA recycled water include pipelines, booster pump stations, reservoirs and related appurtenances whose number, locations, and capacities to achieve the OBMPU goals are presently unknown.

3.5.2.6 Surplus and Supplemental Water Supply Acquisition: Operational Scenario

Once the pipeline is installed to enable future conveyance of recycled water, imported surface water and groundwater from nearby streams and groundwater basins, to the Chino Basin, operations do not require any visits unless unforeseen circumstances arise that would require maintenance or repair of the pipelines. In the event of routine maintenance one vehicle trip per maintenance event would be required. Booster pump stations that are incorporated into the project will be operated to convey the water, but the capacity and amounts of water pumped is currently unknown.

3.5.2.7 Conveyance Pipelines: Construction Scenario

Please refer to the discussion under Section 3.5.2.3 Conveyance Pipelines: Construction Scenario, above.

3.5.3 Project Category 3: Storage Basins, Recharge Facilities and Storage Bands

3.5.3.1 Storage and Recharge Facilities: Summary of Facilities and Operational Scenarios

The RMPU was developed in open and transparent planning processes that were convened by Watermaster through an ad-hoc committee; note that, as stated under **3.4.3.2 Program Element 2. Develop and Implement Comprehensive Recharge Program**, one of the findings of the 2018 RMPU was that Watermaster had enough supplemental water recharge capacity to meet its Replenishment Obligations via wet-water recharge through 2050. The new storage/recharge facilities and/or improvements to existing facilities that may result from the Recharge Master Plan Update (RMPU) process as envisioned under the OBMPU are listed below and shown on Exhibit 12. Note that the RMPU process and facility modifications have been evaluated in detail.

The proposed storage facilities would divert surface water to be stored at the proposed facilities. The amount of surface water diverted by the proposed storage and recharge facilities is not presently known, and it would be speculative to estimate at this time. Future surface water diversions to these facilities would depend on future applications to divert surface water to a specific proposed facility, and would require a second tier CEQA evaluation.

New Storage Basin: California Institute for Men (PE2, PE4, PE5, PE8/9)

The OBMPU envisions constructing and operating a new storage basin for stormwater and supplemental waters at the California Institute for Men (CIM). The location of the CIM is depicted on Exhibit 12. The new recharge resulting from this new storage basin meets the objectives of **PEs 2, 4, 5, and 8/9**, the objectives of which are outlined under Section 3.4, Project Characteristics above.

<u>New Storage Basin, California Institute for Men: Summary of Facilities</u>

The OBMPU envisions the following facilities at the CIM: a diversion structure that would divert stormwater and dry-weather discharge from Chino Creek to the new storage basin; booster pump stations, pipelines and basins that would convey stormwater and dry-weather discharge from the new storage basin to recharge facilities in the northern part of the Basin; and, pipelines to convey supplemental waters to the storage basin for seasonal storage. The new storage basin at the CIM could have an estimated area between 50 and 100 acres, although its capacity and the amount of surface water diverted to it is unknown at this time. The proposed new storage basin will require conveyance facilities that include up to 60,000 LF of pipelines and presently an unknown number, locations and capacities of booster pump stations, basins and related appurtenances.

<u>New Storage Basin, California Institute for Men: Operational Scenario</u>

Operations at this storage reservoir consists of diversion and capture of stormwater and dry-weather discharges, pumping the stored water to recharge basins upstream of these storage reservoirs and maintenance of storage and conveyance facilities. The energy required to pump stored water to recharge facilities or for other uses is presently unknown. Basin maintenance is expected to occur every two to three years for each storage basin, consisting of removal of debris and trash that is diverted with the stormwater and dry-weather discharges, removal of vegetation and vector management. Other operations may include diversion, storage and recharge of imported water and pumping of recycled water from wastewater treatment plants owned by IEUA to these storage reservoirs.

New Storage Basin: Lower Cucamonga Ponds (PE2, PE5, PE8/9)
The OBMPU envisions constructing and operating a new storage basin at the existing Lower Cucamonga Ponds, which will meet the objective of **PE2** through the implementation of recharge projects based on need and available resources. The location of the Lower Cucamonga Ponds is depicted on Exhibit 12. The new recharge resulting from this new storage basin will meet the objectives of **PEs 5 and 8/9**, the objectives of which are outlined under Section 3.4, Project Characteristics above.

<u>New Storage Basin, Lower Cucamonga Ponds: Summary of Facilities</u>
The Lower Cucamonga Ponds are existing detention basins owned by the San Bernardino County Flood Control District. The ponds would be converted into one storage basin to store stormwater and dry-weather discharges, and will encompass an area of about 50 acres, although its capacity and the amount of surface water diverted to it is unknown at this time. The new storage basin at the Lower Cucamonga Ponds may include the following facilities: construction of dam and reservoir over the current footprint of the Lower Cucamonga ponds and adjacent Cucamonga Creek Channel; and booster pump stations, pipelines and reservoirs to convey stormwater and dry-weather discharges from the new storage basin to recharge facilities in the northern part of the basin. The proposed new storage basin will require conveyance facilities that include an estimated 90,000 LF of new pipeline and presently unknown number, locations and capacities of booster pump stations, reservoirs and related appurtenances.

<u>New Storage Basin, Lower Cucamonga Ponds: Operational Scenario</u>
Refer to the Operational Scenario under ***New Storage Basin: California Institute for Men*** above.

New Storage Basin: Mills Wetlands (PE2, PE5, PE8/9)
The OBMPU envisions constructing and operating a new storage basin at the existing Mills Wetlands. The location of the Mills Wetlands is depicted on Exhibit 12. The new recharge resulting from this new storage basin will meet the objectives of **PEs 5 and 8/9**, the objectives of which are outlined under Section 3.4, Project Characteristics above.

<u>New Storage Basin, Mills Wetlands: Summary of Facilities</u>
The Mills Wetlands are existing artificial wetlands used to treat Cucamonga Creek discharge with an area of about 30 acres. The wetlands would be converted into a storage basin to store stormwater and dry-weather discharges, although its capacity and the amount of surface water diverted to it is unknown at this time. The new storage basin at the Mills Wetlands may include the following components: expansion of the storage capacity of the existing Mills wetland by excavation of the bottom and other grading improvements to expand storage capacity; improvements to existing diversion facilities and or the construction of new diversion structures to divert stormwater and dry-weather discharge from Cucamonga Creek to the new storage basin; and, booster pump stations, pipelines and storage basins to convey stormwater and dry-weather discharges from the new basin to recharge facilities in the northern part of the basin. The proposed new storage basin will require conveyance facilities that include an estimated 30,000 LF of new pipelines and presently unknown number, locations and capacities of booster pump stations, reservoirs and related appurtenances.

New Storage Basin, Mills Wetlands: Operational Scenario
Refer to the Operational Scenario under ***New Storage Basin: California Institute for Men*** above.

New Storage Basin: Vulcan Basin (PE2, PE5, PE8/9)
The OBMPU envisions constructing and operating a new storage basin for stormwater and supplemental waters at the existing Vulcan Basin. The location of the Vulcan Basin is depicted on Exhibit 12. The new recharge resulting from this new storage basin will meet the objectives of **PEs 5 and 8/9**, the objectives of which are outlined under Section 3.4, Project Characteristics above.

New Storage Basin, Vulcan Basin: Summary of Facilities
The Vulcan Basin is an existing facility formerly used as a sand and gravel mine. It has an area of about 60 acres. The new storage basin at the Vulcan Basin may include the following components: facilities to divert stormwater and dry-weather flow from the West Fontana Channel and surrounding urban areas to the new storage basin; booster pump stations, pipelines, reservoirs and minor appurtenances to convey supplemental water to the Basin; grading improvements within the Basin to expand the storage capacity and to regulate stored water; booster pump stations, pipelines, reservoirs and minor appurtenances to convey stored water to recharge facilities in the northern part of the basin, the RP3 recharge facilities and to IEUA recycled water system for reuse. The proposed new storage basin may require conveyance facilities that include an estimated 20,000 LF of pipelines and presently unknown number, locations and capacities of booster pump stations, reservoirs and related appurtenances, although its capacity and the amount of surface water diverted to it is unknown at this time.

New Storage Basin, Vulcan Basin: Operational Scenario
Refer to the Operational Scenario under ***New Storage Basin: California Institute for Men*** above.

New Storage Basin: Confluence Project (PE2, PE5, PE8/9)
The OBMPU envisions that the Chino Basin Water Conservation District may construct and operate a new storage basin at the confluence of San Antonio and Chino Creeks (proposed Confluence Project). The new recharge resulting from this Confluence Project meets the objectives of **PEs 2, 5 and 8/9**, the objectives of which are outlined under Section 3.4, Project Characteristics above.

New Storage Basin, Confluence Project: Summary of Facilities
The Confluence Project is anticipated to have an area of about 10 acres and a depth of about 35 feet, which would result in about 200,000 cubic yards of material removal, with the goal of balancing the cut and fill to minimize material export, although its capacity and the amount of surface water diverted to it is unknown at this time. The Confluence Project may include the following components: two diversion structures with rubber dams and pumps to divert stormwater and dry-weather flow from of San Antonio and Chino Creeks to the new storage basin; and booster pump stations, pipelines, reservoirs and minor appurtenances to convey stormwater and dry-weather discharges from the new storage basin to the Montclair spreading basins in the northern part of the basin. The proposed Confluence Project will require conveyance facilities that include an estimated 35,000 LF of pipelines and presently unknown number and locations of booster pump stations, reservoirs and related appurtenances.

<u>New Storage Basin, Confluence Project: Operational Scenario</u>
Refer to the Operational Scenario under ***New Storage Basin: California Institute for Men*** above.

Modifications to an Existing Basin: Riverside Basin (PE2, PE5, PE8/9)
The OBMPU envisions constructing and operating a new storage basin at the existing Riverside Basin. The location of the Riverside Basin is depicted on Exhibit 12. The new recharge resulting from this new storage basin will meet the objectives of **PEs 5 and 8/9**, the objectives of which are outlined under Section 3.4, Project Characteristics above.

<u>Modifications to an Existing Basin, Riverside Basin: Summary of Facilities</u>
The Riverside Basin is an existing detention basin owned by the San Bernardino County Flood Control District. The basin would be converted into a multipurpose facility that would maintain its flood control function and temporarily store stormwater and dry-weather discharges, although its capacity and the amount of surface water diverted to it is unknown at this time. It has an area of about 60 acres. The new storage basin at the Riverside Basin includes the following components: expansion of the storage capacity of the existing Riverside Basin by excavation of the bottom and other grading improvements to expand storage capacity and create conservation storage; and booster pump stations, pipelines and storage basins to convey stormwater and dry-weather discharges from the new storage basin to recharge facilities in the northern part of the basin. The proposed new storage basin will require conveyance facilities that include an estimated 5,000 LF of pipelines and presently unknown number, locations and capacities of booster pump stations, reservoirs and related appurtenances.

<u>Modifications to an Existing Basin, Riverside Basin: Operational Scenario</u>
Refer to the Operational Scenario under ***New Storage Basin: California Institute for Men*** above.

Modifications to an Existing Basin: Jurupa Basin (PE2, PE5, PE8/9)
The OBMPU envisions constructing improvements at the Jurupa Basin. The location of the Jurupa Basin is depicted on Exhibit 12. The new recharge resulting from this new storage basin will meet the objectives of **PEs 2, 5 and 8/9**, the objectives of which are outlined under Section 3.4, Project Characteristics above.

<u>Modifications to an Existing Basin, Jurupa Basin: Summary of Facilities</u>
The modifications to Jurupa Basin includes demolition of existing internal berms, constructing new internal berms, grading improvements to improve internal hydraulics within the basin, removing fine-grained materials from the Jurupa Basin floor to improve its infiltration rate and increase recharge capacity, and improvements at the Jurupa pump station intake that include the construction of trash racks or their functional equivalent and access to remove trash and debris from the pump intake structure.

<u>Modifications to an Existing Basin, Jurupa Basin: Operational Scenario</u>
This Jurupa Basin improvements in this project will change the operation of the basin from a temporary storage basin to a temporary storage and recharge reservoir, although its capacity and the amount of surface water to be diverted and recharged is unknown at this time. This would result in increased diversions from San Sevaine Creek, increased pumping to the RP3 recharge basin and increased recharge in the Jurupa Basin. Basin maintenance is expected to occur every two to three years, consisting of grading activities to remove fine-grained sediments, repair berms

and hydraulic structures, removal of debris and trash that's diverted with the stormwater and dry-weather discharges, removal of vegetation and vector management.

Flood Managed Aquifer Recharge (PE2, PE5, PE8/9)

The OBMPU envisions constructing flood managed aquifer recharge (MAR) facilities in the northeast part of basin to recharge supplemental water. This assumes that land in existing agricultural uses can be flooded to achieve managed aquifer recharge. The potential cumulative area of these facilities is about 200 acres, which represents the total agricultural land use area in the northern part of the Chino Basin. The precise location of the proposed new flood MAR facilities is unknown at this time, beyond that they would be located within northern portion of the Chino Basin as shown on Exhibit 12, and its capacity and the amount of surface water diverted to it is unknown at this time. The new recharge resulting from this new storage basin will meet the objectives of **PEs 2, 5, and 8/9**, the objectives of which are outlined under Section 3.4, Project Characteristics above.

Flood Managed Aquifer Recharge: Summary of Facilities

Facilities to implement this include diversion structures and conveyance facilities that would convey surface water to the available agricultural land. Conveyance facilities include pipelines, booster stations, basins and related appurtenances. The proposed new MAR facilities would require conveyance facilities that include an estimated 35,000 LF of new pipelines and presently unknown number, locations and capacities of booster pump stations, basins and related appurtenances.

Flood Managed Aquifer Recharge: Operational Scenario

Operations at these facilities consist of diversion and capture of supplemental water to flood existing agricultural land. Facility maintenance is expected to occur every two to three years, consisting of minor grading activities to remove fine-grained sediments, repair berms and hydraulic structures and removal of nuisance vegetation, debris and trash.

MS4 Compliant Projects (PE2, PE4, PE8/9)

The OBMPU envisions collaborating with the MS4 permittees (typically cities and counties) to ensure MS4-compliance projects prioritize recharge. This will result in the construction of new MS4-compliance facilities that increase recharge in the Chino Basin. The Watermaster does not directly develop any MS4-compliance projects; these projects will occur as development within the overall Chino Basin area occurs. The MS4 compliance initiative meets the objectives of **PEs 2, 4 and 8/9**, the objectives of which are outlined under Section 3.4, Project Characteristics above.

MS4 Compliant Projects: Operational Scenario

Operations of these MS4 compliant projects consists of diversion and capture of on-site stormwater and dry-weather discharges for treatment and recharge, although the location and volume of such diversion and recharge projects is unknown at this time. Maintenance is expected to occur annually and will include activities specific to each facility type and could include: removal of debris and trash and replacement of components (e.g., filters).

CONCLUSION

The conveyance facilities required to increase recharge in the Chino Basin include an estimated 275,000 LF of pipelines and presently unknown booster pump stations, reservoirs and minor appurtenances whose locations and capacities to achieve the OBMPU goals are presently unknown.

3.5.3.2 Storage Reservoirs: Construction Scenario

The OBMPU proposes to develop 4 new storage reservoirs (CIM, Mills Wetlands, Vulcan Basin, and the Confluence Project), and install modifications to 3 existing reservoir/basins (Riverside Basin, Lower Cucamonga Ponds, and Jurupa Basin).

With respect to new storage reservoirs, it is forecast that for site preparation of a basin and access road, no more than 2 acres will be actively graded on a given day, while the OBMPU envisions constructing an area of up to 260 to 310 acres of new storage reservoirs. Each new basin is anticipated to be excavated to depths ranging from 20 to 100 feet. Given the area required to install the 3 new storage reservoirs, it is anticipated that the time required for the construction of these 3 new storage reservoirs is about 6-18 months per basin or a total of 18 months to 4.5 years to construct all reservoirs.

It is anticipated that grading activities will occur over an average of up to 90 to 120-day period and will require two bull dozers, two front end loaders, two water trucks, several scrapers, two excavators and four dump/haul trucks operating 6-8 hours per day. Calculations assume 20 workers will each commute 40 miles round-trip to each of the three storage basin sites. It is anticipated that no more than two reservoirs would be constructed per year.

Construction of each storage basin—including the construction of modified basins—will require the delivery and installation of equipment and materials. It is not known whether each site will balance as the basins will require excavation to reach the desired depth. However, it is anticipated that no more than 2 million cubic yards (cy) of materials total would be hauled off site by 15 cy trucks. No more than 100 round trips per day at 30 miles round-trip would be required to accomplish the effort to remove excess materials off-site. This would occur over the 30 year horizon with some periods of no hauling activities, and other periods that would reach 100 round trips per day. An estimated total of 110 round trips per day (trucks and employees) would be required to haul excess materials to a soil receiving facility. Additionally, given that it is known that contaminated soils may exist at one or more of the proposed storage basin sites, any contaminated soils will need to be properly characterized by identifying the contaminant discovered, and, based on the contaminants discovered, the soils will either be treated, blended, or directly disposed of at an appropriate facility.

It is assumed that at least two of the storage reservoirs described herein will require lining to prevent high groundwater issues in perched aquifers. The lining will consist of filling the basin floor with bentonite and soil, and compacting the top soil by rolling or tamping.

In addition to the above construction equipment, heavy duty trucks will be employed for on-site deliveries. Smaller trucks and automobiles will be utilized for on-site supervision and employee commuting. The diesel delivery trucks are assumed to require 300 on-road miles per day for a total of 30 days.

It is anticipated that the modifications proposed at the Lower Cucamonga Ponds, Riverside Basin, and Jurupa Basin, it is anticipated that each facility will require 60 days to complete grading activities, and will require one bull dozer, a front-end loader, water truck, grader, excavator and two dump/haul trucks operating 8 hours per day. Completion of the modifications to these basins is anticipated to require a total of 6 months to a year to complete per facility. As with the above outline for construction of new storage reservoirs, it is anticipated that the proposed basin modification will require the delivery and installation of equipment and materials. This phase of construction will result in 6 truck trips on the worst-case day with an average round trip of 40 miles delivering construction materials and equipment (concrete, steel, pipe, etc.). Calculations assume six workers will each commute 40 miles round-trip to the work site. In addition to the above construction equipment, heavy duty trucks will be employed for on-site deliveries. Smaller trucks and automobiles will be utilized for on-site supervision and employee commuting. The diesel delivery trucks are assumed to require 300 on-road miles per day for a total of 10 days. Any additional excavation required would fall under the construction scenario discussed in the paragraphs above, and would fall within the anticipated that 2 million cy of materials total that would be hauled off the 7 storage reservoir sites.

Flood Managed Aquifer Recharge Facilities

In addition to the proposed storage reservoirs, the OBMPU proposes up to 200 acres of Flood Managed Aquifer Recharge (MAR) facilities within existing agricultural use areas. MAR facility construction consists of grading existing agricultural lands to be able to hold and recharge surface water. The precise locations of the proposed new flood MAR facilities are unknown at this time, beyond that they will be located within northern portion of the Chino Basin as shown on Exhibit 12. As such, impacts related to the construction of these facilities have not been fully defined beyond that Flood MAR facilities are assumed to be a fraction of the impacts of the storage reservoirs.

3.5.3.3 Storage Bands: Summary

The OBMPU proposes the expansion of the safe storage capacity from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward. Generally, this expansion would not result in any visible above ground impacts; however, in order to ensure safe storage capacity within the Chino Basin, the facilities outlined herein (as part of 3.5 Summary of All Facilities) are intended to support this expansion.

3.5.4 Project Category 4: Desalters and Water Treatment Facilities

3.5.4.1 Water Treatment Plants: Summary of Facilities, Operational Scenarios, and Construction Scenarios

Please note that IEUA’s 2017 FMP PEIR included extensive evaluations of future modifications to its four Water Reclamation Plants (WRPs: RP-1, RP-4, RP-5, and CCWRF). These previously analyzed projects are considered part of the baseline conditions, however, they are summarized here for completeness. The findings of this three-year old PEIR will be extensively referenced in this document.

Modifications to an Existing Imported Water Treatment Facility: Water Facilities Authority Agua de Lejos Treatment Plant (PE2, PE4, PE5, PE8/9).

In order to meet the objectives of **PE2** (Exhibit 12) and **PE4** (Exhibit 14), the OBMPU envisions constructing improvements to the Water Facilities Authority (WFA) Agua de Lejos Treatment Plant. The WFA modifications also meet the objectives of **PEs 5 and 8/9**, the objectives of which are outlined under Section 3.4, Project Characteristics above.

<u>Modifications to an Existing Imported Water Treatment Facilities, Water Facilities Authority Agua de Lejos Treatment Plant: Summary of Facilities</u>

These modifications include the removal of some or all its solids handling limitations, and envisions other improvements to increase its capacity, thereby increasing in-lieu recharge capacity. Additionally, the OBMPU envisions constructing improvements to the WFA Agua de Lejos Treatment Plant to increase its capacity by up to 25,000 afy and also envisions an increase in the use of imported water purchased from Metropolitan Water District of Southern California by up to 25,000 afy. The specific improvements needed to increase the capacity of the plan are currently unknown, though some of the surface water supplied could be obtained through Three Valleys Municipal Water District (TVMWD) and its Miramar Treatment Plant.

Modifications to an Existing Imported Water Treatment Facilities, Water Facilities Authority Agua de Lejos Treatment Plant: Operational Scenario

This project consists of expanding the existing solids handling capacity at the Water Facilities Authority Agua de Lejos Treatment Plant from 20 mgd in wintertime and 40 mgd in summertime, to a constant capacity of 81 mgd. This will result in constantly operating the plant at two to four times its current capacity. The energy consumption anticipated to result from increasing operations at the Facility is not known at this time, though the overall program operational impacts are discussed under Chapter 4.5, Energy.

Modifications to an Existing Imported Water Treatment Facilities, Water Facilities Authority Agua de Lejos Treatment Plant: Construction Scenario

The OBMPU envisions constructing improvements to the Water Facilities Authority (WFA) Agua de Lejos Treatment Plant to remove some or all its solids handling limitations, and envisions other improvements to increase its capacity to its original design capacity, thereby increasing in-lieu recharge capacity. The specific improvements needed to increase the capacity of the plan are currently unknown.

Upgrade Existing Recycled Water Treatment Plant(s) (PE7)

The OBMPU envisions constructing new treatment trains at one or more IEUA recycled water treatment plants (RP-1, RP-4, RP-5, CCWRF) to reduce the TDS concentration of recycled water to levels that ensure compliance with IEUA and Watermaster's recycled water permits, which would meet the objectives of **PE7** by enabling the Watermaster to maintain Hydraulic Control. The facilities and/or improvements that may need to be implemented are listed below and shown on Exhibit 25.

Upgrade Existing Recycled Water Treatment Plant(s): Summary of Facilities

The area disturbed during construction of the new treatment train capacity expansion would be limited to the disturbed areas at IEUA's existing recycled water treatment plants, as described in IEUA's 2017 FMP PEIR.

Upgrade Existing Recycled Water Treatment Plant(s): Operational Scenario

Upgrades to the existing recycled water treatment plants will result in the operation of new treatment trains at one or more IEUA recycled water treatment plants. (See IEUA's 2017 FMP PEIR.)

Upgrade Existing Recycled Water Treatment Plant(s): Construction Scenario

The construction of a new treatment train (i.e. advanced water treatment to minimize TDS concentration in the recycled water generated at IEUA's Treatment Plants) may occur at one or more of IEUA's Recycled Water Reclamation Plants (WRP). As analyzed in IEUA's 2017 FMP, it is assumed that advanced recycled water treatment would be developed at one or more of IEUA's existing Treatment Plants, and that no more than one water treatment facility would be constructed per year.

3.5.4.2 Desalters and Advanced Water Treatment Facilities

Modifications to the Chino Desalters (PE4, PE7, PE8/9)

In order to achieve the objectives of **PE4** and **PE7**, the OBMPU envisions expanding the existing Chino Desalter capacity by between 2,000 afy (to achieve **PE4**'s goals alone) and 6,000 afy (to achieve both **PE4**'s and **PE7**'s goals) by adding new wells and either expanding the Chino-I and/or Chino-II treatment capacity or constructing a new treatment facility and product conveyance facilities. The location of the Chino Desalters is shown on Exhibit 14. The facilities that would enable the Watermaster to maintain Hydraulic Control as envisioned under the OBMPU are shown on Exhibit 25. The expansion of the Chino Desalters or construction of new functionally equivalent facilities could be used to mitigate the loss of net recharge and Safe Yield caused by a Storage and Recovery Program, which would meet the objectives of **PE 8/9**, the objectives of which are outlined under Section 3.4, Project Characteristics, above.

<u>Modifications to the Chino Desalters: Summary of Facilities</u>

The new wells required to expand the Chino Desalters are discussed under Section 3.5.1.2 ASR, Injection and Pumping Wells, above. The area disturbed during construction of the treatment plant capacity expansion—either through expansion of existing facilities or construction of a new facility—would be limited to the disturbed areas at the existing Chino Desalter treatment plant sites. Conveyance facilities will be required to convey the treatment plant product water to its end potable use. These conveyance facilities include pipelines, booster pump stations, reservoirs and minor appurtenances whose number, locations and capacities are presently unknown.

<u>Modifications to the Chino Desalters: Operational Scenario</u>

Desalter groundwater well production would increase by 2,000 to 6,000 afy. This would result in upgrades to the existing Chino Desalters to increase their combined capacities by up to 6 mgd or operation of up to a new 6 mgd desalter facility. Upgrades to the existing Chino Desalters or a new desalter facility will result in the operation of an additional 6 mgd of treatment through RO and pumping the additional product water into the distribution systems. The RO process would result in brine that would be disposed of through existing, expanded, or new brine management facilities as discussed under ***Brine Management Facilities (PE7)****, below.* The energy consumption anticipated to result from increasing operations at the Chino Desalters is not known at this time, though the overall program operational impacts are discussed under Chapter 4.5, Energy.

New Advanced Water Treatment Plant (PE5, PE7)

The OBMPU envisions constructing an advanced water treatment plant, which would maximize recycled water reuse (shown on Exhibit 16). The new advanced treatment plant meets the objectives of **PEs 5 and 7**, the objectives of which are outlined under Section 3.4, Project Characteristics above. This facility was previously evaluated in the 2017 FMP PEIR and data will be brought forward into this document.

<u>New Advanced Water Treatment Plant: Summary of Facilities</u>

Advanced water treatment refers to the following wastewater treatment processes: RO, membrane filtration, or functionally equivalent processes, and potentially ultraviolet (UV) disinfection. The area expected to be disturbed by the construction and operation of the plant is 10 acres. The location of this treatment plant is currently unknown; however, it could be collocated at an existing IEUA treatment plant.

The water produced by the new treatment plant could be used for direct potable reuse (DPR) and or indirect potable reuse (IPR). In either case, conveyance facilities will be required to convey the treatment plant product water to either use. These conveyance facilities include pipelines, booster pump stations, reservoirs and minor appurtenances whose number, locations and capacities are presently unknown. However, it is anticipated that the pipelines will be located below ground and within existing road rights-of-ways.

<u>New Advanced Water Treatment Plant: Operational Scenario</u>
Operations consist of running and maintaining the treatment plant. Operations will consist of treating up to 20 mgd of water through RO and microfiltration or functionally equivalent processes, and potentially ultraviolet (UV) disinfection. The plant will run 90 percent of the time. The energy requirements and chemicals required to operate the plants are presently unknown. Waste generation is presently unknown.

Brine Management Facilities (PE7)
The OBMPU envisions constructing brine management facilities for the expanded desalting described above that result in no net increase in brine disposal, which would meet the objectives of **PE7** by enabling the Watermaster to maintain Hydraulic Control. The specific brine management facilities are currently unknown.

<u>Brine Management Facilities: Operational Scenario</u>
The OBMPU envisions constructing brine management facilities that result in no net increase in brine disposal. The specific brine management facilities are currently unknown.

3.5.4.3 Desalters and Advanced Water Treatment Facilities: Construction Scenario

The OBMPU envisions expanding the existing Chino Desalter capacity by a total of up to 6,000 afy. The area disturbed during construction of the treatment plant capacity expansion would be limited to the disturbed areas at the two existing Chino Desalter treatment plant sites. As such, desalter expansion is proposed occur within an existing facility and would not require grading or site preparation. Installation of the expansion equipment would require a maximum of 15 workers and typical construction site equipment (cranes for setting ion exchange vessels, front end loaders, fork lifts, etc.) Impact estimates will assume 1 vehicle round-trip per worker and 10 deliveries per day resulting in about 25 round-trips per day over a construction period of 12 months. The average daily round-trip is anticipated to be 40-miles.

Conversely, the OBMPU envisions constructing a new advanced water treatment plant. The area expected to be disturbed by the construction and operation of the plant is 10 acres. It is anticipated that a new advanced treatment plant would be designed to treat up to 20 mgd of water. The construction of the 20 mgd advanced water treatment facility would consist of site clearing, grading, construction of facilities, installation of equipment, and site completion. Construction equipment would include the following: one bull dozer or motor grader, backhoes, loaders, dump trucks, crew trucks, concrete trucks, cranes, personal vehicles, compactor, delivery trucks, and a water truck. It is anticipated that the maximum number of construction personnel at a site on any given day will be 15 persons. The maximum number of truck deliveries is forecasted at 10 per day at 40-miles round-trip per day of construction. Materials and equipment would be delivered to the site including piping, building materials, concrete forms, roofing materials, HVAC equipment, pumps, diffusers, screens, belt presses, and screw presses. The advanced water treatment facility would require about 18 months to construct.

Brine Management Facilities

The OBMPU envisions constructing brine management facilities that result in no net increase in brine disposal. The specific brine management facilities are currently unknown.

3.5.4.4 Groundwater Treatment Facilities: Summary of Facilities, Operational Scenarios, and Construction Scenarios

Groundwater Treatment at Well Sites (PE5, PE6, PE8/9)

The OBMPU envisions constructing water treatment facilities at well sites or at sites near to wells to treat groundwater to meet drinking water standards for local use; this would meet the objectives of **PE6** because groundwater treatment facilities would address the contaminants of concern within the Chino Basin based on the recommendations of the *Groundwater Quality Management Plan*. The construction of water treatment facilities at well sites or at sites near to wells to treat groundwater has the potential to mitigate the effects of Storage and Recovery Programs on the remediation projects, which would meet the objectives of **PE 8/9**, the objectives of which are outlined under Section 3.4, Project Characteristics above. Additionally, the construction of groundwater treatment facilities meets the objectives of **PE 5**, the objectives of which are outlined under Section 3.4, Project Characteristics above.

<u>Groundwater Treatment at Well Sites: Summary of Facilities</u>

The area expected to be disturbed by the construction and operation of the treatment facilities would be limited to existing well sites if the plant is located at an existing well site; and will range from about 0.5 acres to 2 acres per facility for new treatment facilities located near a well site. New pipelines, booster pumps, reservoirs and related appurtenances will be required to convey groundwater to each treatment plant that is not collocated with a well. The precise number, locations and capacities of the proposed new water treatment plants, pipelines, booster pumps, reservoirs and related appurtenances are presently unknown. However, it is anticipated that for off-wellsite treatment plants, the pipelines will be constructed underground and within existing road rights-of-ways. The length of pipelines to convey groundwater to an off-wellsite treatment plant is expected to range between 2,500 to 10,000 LF, connecting one to four wells to the treatment plant. It is assumed that the groundwater treatment facilities would be located at or near wells shown in on Exhibit 18 where the water quality in water produced at those wells currently exceed drinking water MCLs.

<u>Groundwater Treatment at Well Sites: Operational Scenario</u>

Operations consist of running and maintaining the treatment plant. The treatment plants are assumed to operate 50 to 90 percent of the time. The energy requirements and chemicals required to operate these plants are presently unknown. Waste generation is presently unknown.

<u>Groundwater Treatment at Well Sites: Construction Scenario</u>

The OBMPU envisions constructing water treatment facilities at well sites or at sites near to wells to treat groundwater to meet drinking water standards for local use. The area expected to be disturbed by the construction and operation of the proposed treatment facilities would be limited to existing well sites; and will range from about 0.5 acres to 2 acres per facility for new treatment facilities located near a well site. Construction of water treatment facilities may involve site demolition; site paving; site prep/grading; excavation and installation of yard pipes; installation of treatment facilities; site finishing (landscaping, misc. curb/cutter, etc.); site drainage (above and below grade). Construction equipment would include the following: one bull dozer or motor grader, backhoes, loaders, dump trucks, crew trucks, concrete trucks, cranes, personal vehicles, compactor, delivery trucks, and a water truck. It is anticipated that the maximum number of construction personnel at a site on any given day will be 5 persons. The maximum number of truck deliveries is forecasted at 5 per day at 40-miles round-trip per day of construction. Each water treatment facility will require about three months to construct.

Regional Groundwater Treatment (PE5, PE6, PE8/9)

The OBMPU envisions constructing regional water treatment facilities that treat groundwater from multiple wells to meet drinking water standards for local use and/or export; this would meet the objectives of **PE6** because groundwater treatment facilities would address the contaminants of concern within the Chino Basin based on the recommendations of the *Groundwater Quality Management Plan*. The construction of regional water treatment facilities has the potential to mitigate the effects of Storage and Recovery Program on the remediation projects, which would meet the objectives of **PE 8/9**, the objectives of which are outlined under Section 3.4, Project Characteristics above. Additionally, the construction of regional groundwater treatment facilities meets the objectives of **PE 5**, the objectives of which are outlined under Section 3.4, Project Characteristics above.

<u>Regional Groundwater Treatment: Summary of Facilities</u>

The area expected to be disturbed by the construction and operation of the treatment facilities is expected to be less than 20 acres per facility. New pipelines, booster pumps, reservoirs and related appurtenances will be required to convey groundwater to each treatment plant. The precise number, locations and capacities of the proposed new water treatment plants are presently unknown. However, it is anticipated that the pipelines will be constructed underground and within existing road rights-of-ways. The length of pipelines to convey groundwater the proposed treatment plants is expected to range between 5,000 to 50,000 LF, connecting up to ten wells to the treatment plant. It is assumed that the regional groundwater treatment facilities will be located in close proximity to wells shown in on Exhibit 18 where the water quality in water produced at those wells currently exceed drinking water MCLs.

<u>Regional Groundwater Treatment: Operational Scenario</u>

Operations consist of running and maintaining the treatment plant. The treatment plants are assumed to operate 50 to 90 percent of the time. The energy requirements and chemicals required to operate these plants are presently unknown. Waste generation is presently unknown.

<u>Regional Groundwater Treatment: Construction Scenario</u>

The OBMPU envisions constructing an unknown number of regional water treatment facilities located in the vicinity of multiple wells. The area expected to be disturbed by the construction of the proposed treatment facilities would be 10 acres due to the pipeline installation required to convey water from multiple wells to a centralized location at which the treatment facility will be located. A regional groundwater treatment facility would will range from about 2 acres to 4 acres in size per facility. Construction of water treatment facilities may involve site demolition; site paving; site prep/grading; excavation and installation of yard pipes; installation of treatment facilities; site finishing (landscaping, misc. curb/cutter, etc.); site drainage (above and below grade).[31] Construction equipment would include the following: one bull dozer or motor grader, backhoes, loaders, dump trucks, crew trucks, concrete trucks, cranes, personal vehicles, compactor, delivery trucks, and a water truck. It is anticipated that the maximum number of construction personnel at a site on any given day will be 10 persons. The maximum number of

[31] Please refer to the discussion of the construction scenario for conveyance facilities for a depiction of the construction associated with installation of pipeline that may be associated with the proposed regional groundwater treatment facilities.

truck deliveries is forecasted at 10 per day at 40-miles round-trip per day of construction. Each regional water treatment facility will require about 12-months to construct.

Improve Existing Groundwater Treatment Facilities (PE5, PE6, PE8/9)
The OBMPU envisions constructing improvements at existing treatment facilities to enable them to continue to treat contaminated groundwater to drinking water standards for local use; this would meet the objectives of **PE6** because groundwater treatment facilities would address the contaminants of concern within the Chino Basin based on the recommendations of the *Groundwater Quality Management Plan*. The improvement of existing groundwater treatment facilities has the potential to mitigate the effects of Storage and Recovery Programs on the remediation projects, which would meet the objectives of **PE 8/9**, the objectives of which are outlined under Section 3.4, Project Characteristics above. Additionally, the construction of improvements at existing treatment facilities meets the objectives of **PE 5**, the objectives of which are outlined under Section 3.4, Project Characteristics above.

<u>Improve Groundwater Treatment Facilities: Summary of Facilities</u>
These treatment plants treat contaminants known at the time they were designed and constructed. New treatment processes may need to be added to these existing plants with current and future drinking water regulations. The capacities of these treatment improvements are presently unknown. The treatment processes that could be used include granulated activated carbon, air stripping, ion exchange, reverse osmosis, biological, and other processes.

<u>Improve Groundwater Treatment Facilities: Operational Scenario</u>
Operations consist of running and maintaining the treatment plant. The treatment plants are assumed to operate 80 to 90 percent of the time. The energy requirements and chemicals required to operate the proposed improvements at these plants are presently unknown. Waste generation associated with the proposed improvements at these plants is presently unknown.

<u>Improve Groundwater Treatment Facilities: Construction Scenario</u>
Construction required to improve existing groundwater treatment facilities are presently unknown, though some of the components provided under <u>Groundwater Treatment at Well Sites: Construction Scenario</u> and <u>Regional Groundwater Treatment: Construction Scenario</u> may apply to the proposed improvements.

3.5.5 Other: Biological Monitoring

3.5.5.1 PBHSP Biological Monitoring (PE1)

The objective of PE 1 under the OBMPU includes continuing the ongoing monitoring and reporting program and developing and updating an *OBMP Monitoring and Reporting Work Plan*, which is considered to be part of the baseline and is included here as it is a part of the comprehensive OBMPU. Watermaster's biological monitoring program is conducted pursuant to the adaptive monitoring program (AMP) for the Prado Basin Habitat Sustainability Program (PBHSP). The objective of the PBHSP is to ensure that the groundwater-dependent ecosystem in Prado Basin will not incur unforeseeable significant adverse impacts due to implementation of the Peace II Agreement. The monitoring program produces time series data and information on the extent and quality of the riparian habitat in the Prado Basin over a historical period that includes both pre- and post-Peace II implementation. Two types of monitoring and assessment are performed: regional and site-specific. Regional monitoring and assessment of the riparian habitat is performed by mapping the extent and quality of riparian habitat over time using multi-spectral remote-sensing data and air photos. Site-specific monitoring performed in the Prado Basin includes field vegetation surveys and seasonal ground-based photo monitoring. Under the OBMPU, Watermaster will continue these efforts.

3.6 ENTITLEMENTS, APPROVALS AND OTHER AGENCY PARTICIPATION

Implementation of future individual project(s) in accordance with the OBMPU may require a variety of approvals from other agencies. This section summarizes agency approvals that have been identified to date. This list may be expanded as the environmental review proceeds. Consequently, it should not be considered exhaustive.

- Notice of Intent (NOI) to the State Water Resources Control Board (SWRCB) for a NPDES general construction stormwater discharge permit. This permit is granted by submittal of an NOI to the SWRCB, but is enforced through a Storm Water Pollution Prevention Plan (SWPPP) that identifies construction best management practices (BMPs) for the site. In the project area, the Santa Ana Regional Water Quality Control Board enforces the BMP requirements described in the NPDES permit by ensuring construction activities adequately implement a SWPPP. Implementation of the SWPPP is carried out by the construction contractor, with the Regional Board and county providing enforcement oversight.

- The project includes the potential discharge of fill into or alterations of “waters of the United States,” “waters of the State,” and stream beds of the State of California. Regulatory permits to allow fill and/or alteration activities due to project activities such as pipeline installation are likely be required from the Army Corps of Engineers (ACOE), the Regional Board, and California Department of Fish and Wildlife (CDFW) over the life of the OBMPU. A Section 404 permit for the discharge of fill material into “waters of the United States” may be required from the ACOE; a Section 401 Water Quality Certification may be required from the Regional Board; a Report of Waste Discharge may be required from the Regional Board; and a 1600 Streambed Alteration Agreement may be required from the CDFW.

- The U.S. Fish and Wildlife Service (USFWS) and/or CDFW may need to be consulted regarding threatened and endangered species documented to occur within an area of potential impact for future individual projects. This could include consultations under the Fish and Wildlife Coordination Act.

- Land use permits may be required from local jurisdictions, such as individual cities and the two Counties (Riverside and San Bernardino).

- Air quality permits may be required from the South Coast Air Quality Management District (SCAQMD).

- Encroachment permits may be required from local jurisdictions, such as individual cities, California Department of Transportation (Caltrans), the two counties (Riverside and San Bernardino), Flood Control agencies, and private parties such as Southern California Edison, The Gas Company, or others such as BNSF Railway Company.

- Watermaster has a separate approval process for determining material physical injury to the stakeholders within the Chino Basin.

- State Water Resources Control Board will be a responsible agency if permits or funding are requested from the State Revolving Fund Program or Division of Drinking Water.

This is considered to be a partial list of other permitting agencies for future OBMPU future individual projects.

3.7 CEQA RESPONSIBLE AGENCIES

In addition to the above agencies that may be required to review and grant authorizations for future OBMPU projects, the Chino Basin Watermaster functions as a unique entity that has been created by the court. The Watermaster is composed of a Board that consists of member agencies from three groups: an Appropriative Pool, Non-Appropriative Pool, and Agricultural Pool, and four other public agencies (see below), effectively the water producers in the Chino Basin. Individual members of the various pools may assume responsibility for implementing individual projects and activities covered by this OBMPU PEIR. To do this the individual agency would identify a specific project or activity evaluated in this CEQA document and then conduct a shortened environmental review under Sections 15162 and 15168 of the State CEQA Guidelines. Such a review for CEQA compliance could conclude that the project falls within the scope of analysis in this document, i.e., it is consistent with the findings in this PEIR; decide that the proposed project or activity is a minor technical change relative to the OBMPU project description and is subject to an Addendum; or the agency could find that a project or activity exceeds the scope of the this CEQA document's evaluation and requires a supplemental or subsequent environmental document as outlined in State CEQA Guidelines Sections 15162 or 15163. These Responsible Agencies include:

<u>Agricultural Pool, 2019*</u>

State of California, California Institute for Men
State of California, Department of Conservation
State of California, Department of Justice

- Please note that specific companies or parties that are not public agencies are part of the Agricultural Pool, but individuals or group representatives do not have authority to implement CEQA. Please refer to Appendix 1 for a list of all Agricultural Pool participants.

<u>Non-Agricultural Pool, 2019*</u>

City of Ontario
County of San Bernardino
Monte Vista Water District

- Please note that specific companies or parties that are not public agencies are part of the Agricultural Pool, but individuals or group representatives do not have authority to implement CEQA. Please refer to Appendix 1 for a list of all Non-Agricultural Pool participants.

<u>Appropriative Pool Committee, 2019</u>

Monte Vista Water District
Cucamonga Valley Water District

City of Chino
City of Chino Hills
City of Fontana
City of Norco
City of Ontario
City of Pomona
City of Upland
County of San Bernardino
Jurupa Community Services District
West Valley Water District

- Please note that specific companies or parties that are not public agencies are part of the Appropriative Pool Committee, but individuals or group representatives do not have authority to implement CEQA. Please refer to Appendix 1 for a list of all Appropriative Pool Committee participants.

Other Agencies Participating in the Judgment/Agreements

IEUA
Three Valleys Municipal Water District
Western Municipal Water District
Chino Basin Water Conservation District

In all future circumstances, IEUA will remain the Lead Agency for the OBMPU CEQA document and the Watermaster will maintain annual records for cumulative projects implemented under the OBMPU on an annual basis. A CEQA Responsible Agency shall coordinate with these agencies when it assumes CEQA Lead Agency status for a future specific project. Thus, IEUA and Watermaster will continue to accumulate information on implementation of the OBMPU and provide a future project specific Lead Agency with essential information regarding the cumulative impact circumstances at the time a proposed specific project is ready for implementation.

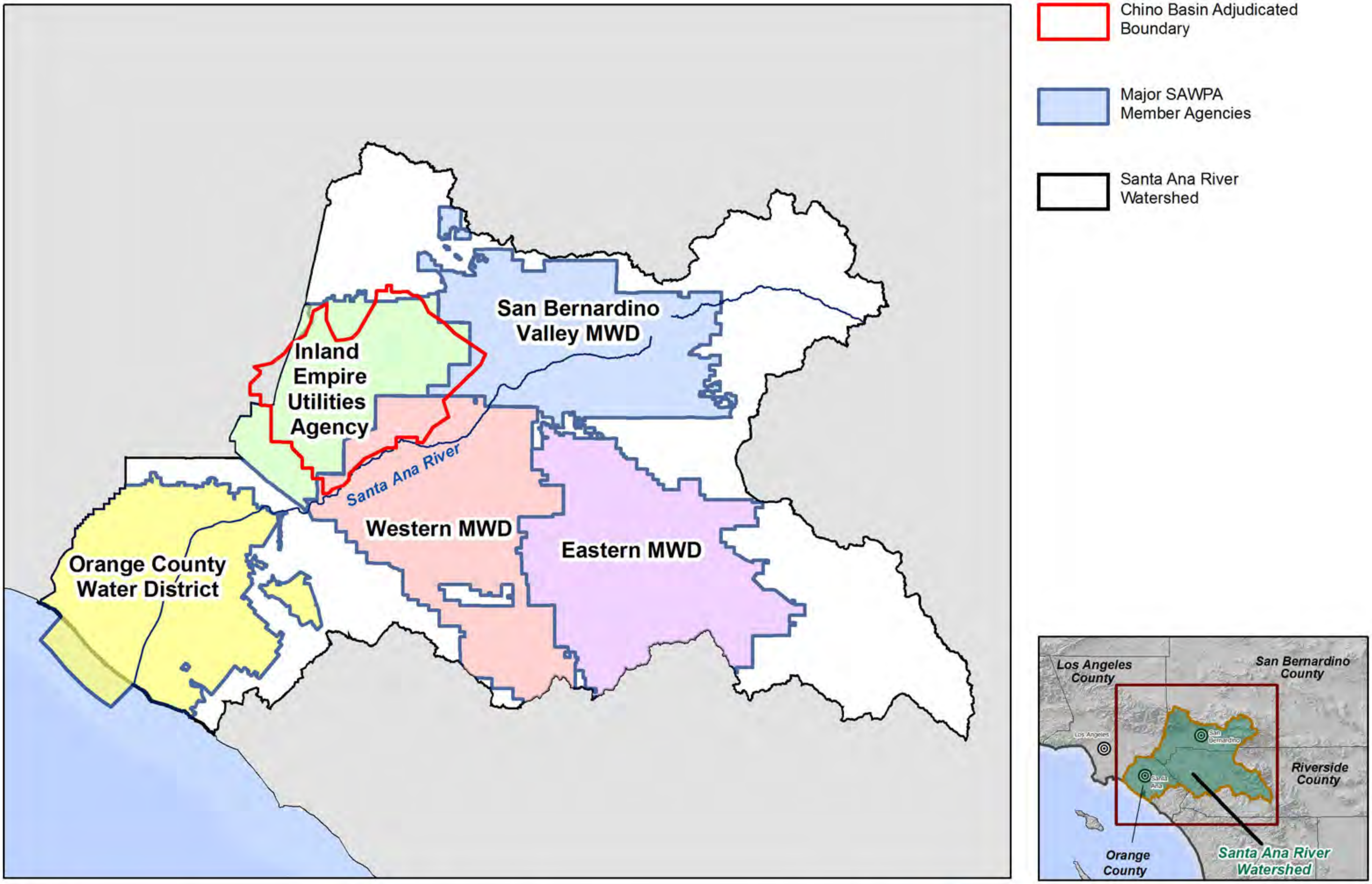
3.8 CUMULATIVE PROJECTS

The intent of a cumulative impact evaluation is to provide the public and decision-makers with an understanding of a given project's contributions to area-wide or community environmental impacts when added to other or all development proposed in an area. The state CEQA Guidelines provide two alternative methods for making cumulative impact forecasts: (1) a list of past, present and reasonably anticipated projects in the project area, or (2) the broad growth impact forecast contained in general or regional plans. Because of the planning character of this project, it will be evaluated in the context of adopted General Plans.

From a water planning perspective, the 2000 OBMP PEIR (Peace I Agreement) and the 2010 Peace II SEIR (Peace II Agreement) represent a cumulative, or carrying capacity, evaluation of water resources in the Chino Basin. Thus, the analysis of Chino Basin water resources contained in this document represents a cumulative analysis of the activities and facilities required to manage the Basin’s water resources. No other projects were identified within the project area or vicinity that would contribute directly to cumulative impacts or cumulative demand for local groundwater infrastructure. This does not include individual water infrastructure projects implemented by local water purveyors to supply potable water to customers. Most of the city General Plans for the Chino Basin assume that buildout or near buildout will occur within their jurisdiction by 2050. Thus, substantial general growth in these cities will occur concurrent with the implementation of the OBMPU. Individual water purveyor infrastructure will be implemented as needed in the future as growth occurs in the Chino Basin, but it is not possible to identify future specific projects without speculation. It is assumed that the proponents of such projects will incorporate the impact evaluations in this document as part of their cumulative impact analyses when such specific projects are proposed.

Because the OBMPU addresses comprehensive water management facilities or activities within a portion of the upper Santa Ana River watershed, there may also be other projects within the watershed that will be implemented. The only such project that is currently defined sufficiently to address under this cumulative impact analysis is the Habitat Conservation Plan (HCP) currently under consideration by the San Bernardino Valley Municipal Water District (Valley District). Where pertinent, the impacts from implementing the HCP on behalf of the upper Santa Ana River watershed will be considered in this document as a possible cumulative impact.

Exhibit 1



Produced by:

WEI
Wildermuth Environmental, Inc.

Author: GAR
Date: 12/16/2019
Name: 1.) Chino in SAR Watershed

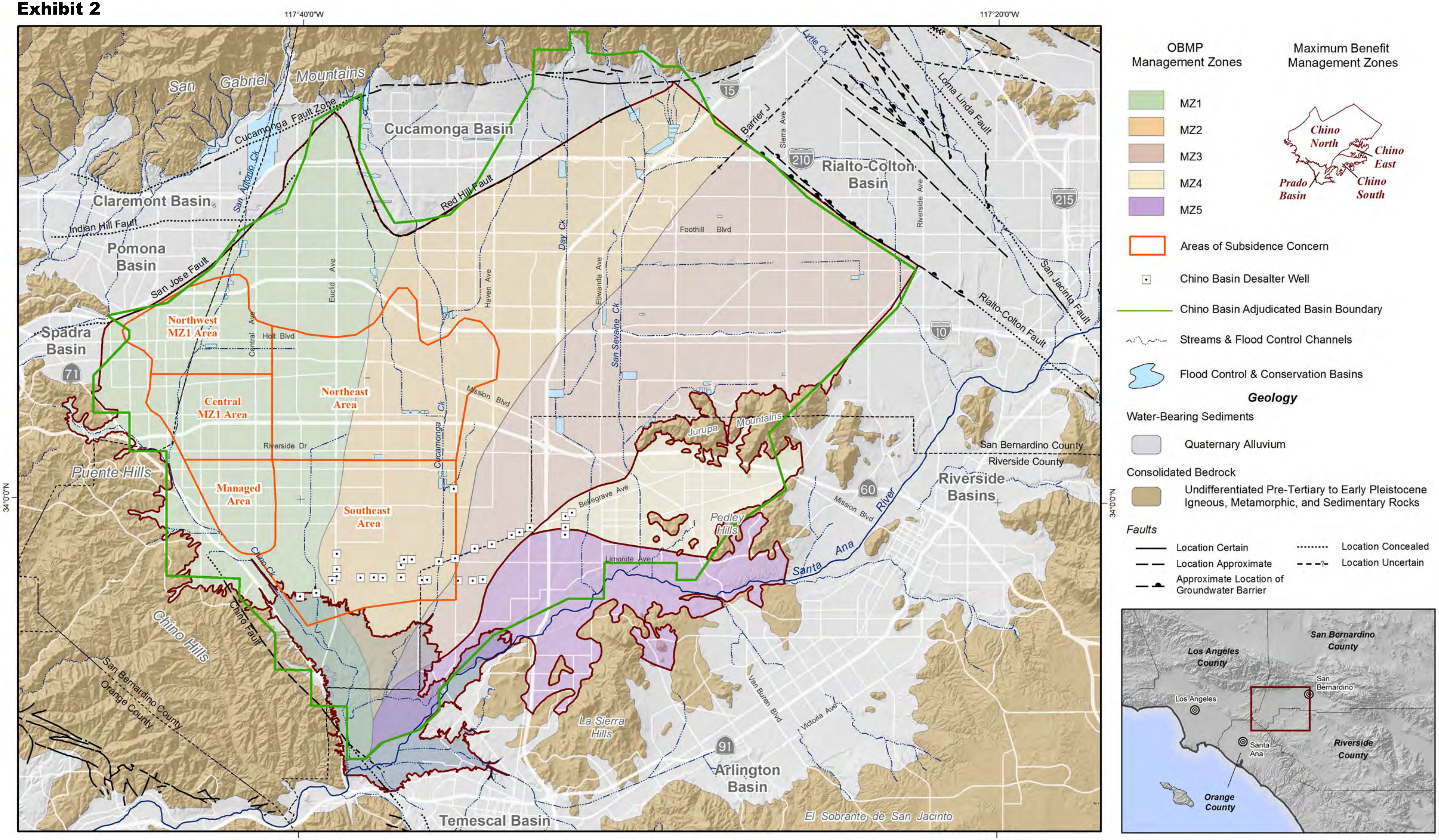
Prepared for:
OBMP 2020 Update
Project Description

Chino Basin Watermaster
Partners in Basin Management

Location of the Chino Basin and the Santa Ana River Watershed

Figure 1-1

Exhibit 2



Prepared by:

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Author: LG
Date: 12/19/2019
Document Name: 2.) Project Location + Bulletin 118

Prepared for:

OBMP 2020 Update
Project Description

Chino Basin Watermaster — Partners in Basin Management

Chino Basin

OBMP Management Zones, Maximum Benefit Management Zones and Areas of Subsidence Concern

Figure 1-1

Exhibit 3

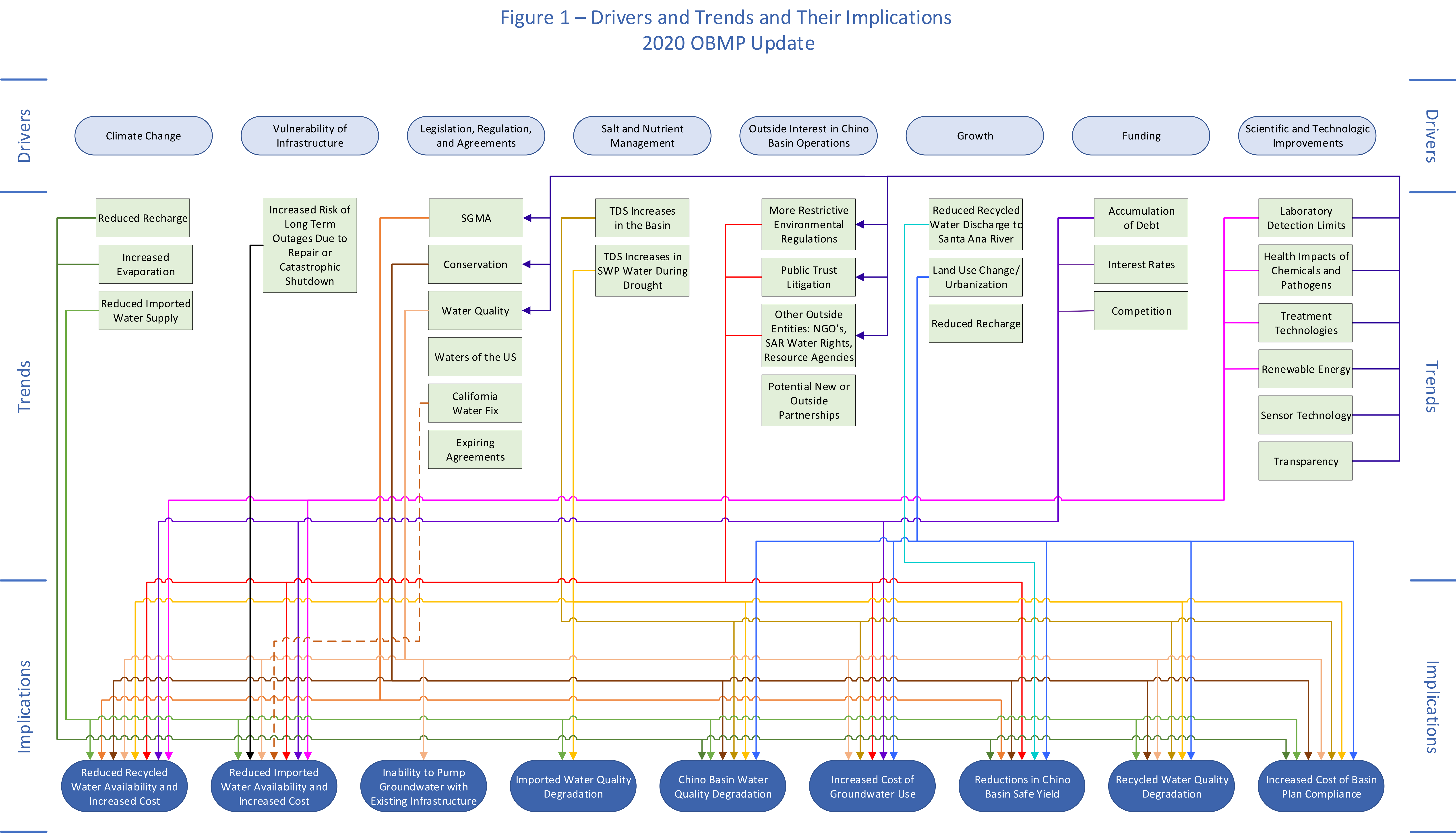


Figure 1 – Drivers and Trends and Their Implications
2020 OBMP Update
Drivers
Trends
Implications
Climate Change
Vulnerability of Infrastructure
Legislation, Regulation, and Agreements
Salt and Nutrient Management
Outside Interest in Chino Basin Operations
Growth
Funding
Scientific and Technologic Improvements
Reduced Recharge
Increased Evaporation
Reduced Imported Water Supply
Increased Risk of Long Term Outages Due to Repair or Catastrophic Shutdown
SGMA
Conservation
Water Quality
Waters of the US
California Water Fix
Expiring Agreements
TDS Increases in the Basin
TDS Increases in SWP Water During Drought
More Restrictive Environmental Regulations
Public Trust Litigation
Other Outside Entities: NGO's, SAR Water Rights, Resource Agencies
Potential New or Outside Partnerships
Reduced Recycled Water Discharge to Santa Ana River
Land Use Change/ Urbanization
Reduced Recharge
Accumulation of Debt
Interest Rates
Competition
Laboratory Detection Limits
Health Impacts of Chemicals and Pathogens
Treatment Technologies
Renewable Energy
Sensor Technology
Transparency
Reduced Recycled Water Availability and Increased Cost
Reduced Imported Water Availability and Increased Cost
Inability to Pump Groundwater with Existing Infrastructure
Imported Water Quality Degradation
Chino Basin Water Quality Degradation
Increased Cost of Groundwater Use
Reductions in Chino Basin Safe Yield
Recycled Water Quality Degradation
Increased Cost of Basin Plan Compliance

Exhibit 4

Implementation actions for the next 20 years by Program Element
Program Element 1
Watermaster will continue to conduct the required monitoring and reporting programs, including collection of: groundwater production, groundwater level, groundwater quality, ground level, surface water, climate, water supply planning, biological, and well construction/destruction monitoring data.
Perform review and update of Watermaster’s regulatory and Court-ordered monitoring and reporting programs and document in a work plan: *OBMP Monitoring and Reporting Work Plan* .
Perform periodic review and update of the *OBMP Monitoring and Reporting Work Plan* (or other guidance documents developed by Watermaster) and modify the monitoring and reporting programs, as appropriate.
Program Element 2
Continue to convene the Recharge Investigations and Projects Committee.
Complete the 2023 Recharge Master Plan Update (RMPU).
Implement recharge projects based on need and available resources.
Update the RMPU no less than every five years (2028, 2033, 2038).
Program Element 4
Implement Watermaster’s Subsidence Management Plan, and adapt it as necessary.
Watermaster will arrange for the physical recharge of at least 6,500 afy of Supplemental Water in MZ-1 as an annual average. Watermaster may re-evaluate the minimum annual quantity of Supplemental Water recharge in MZ-1 and may increase this quantity through the term of the Peace Agreement.
Program Element 5
The IEUA will maximize the reuse of its recycled water in the Chino Basin.
The IEUA, the TVMWD, the WMWD, and/or other Party acting as a coordinating agency will establish or expand future recycled water planning efforts to maximize the reuse of all available sources of recycled water.
Watermaster will support the IEUA, the TVMWD, the WMWD, and/or others in their efforts to maximize recycled water reuse to ensure these efforts are integrated with Watermaster’s groundwater and salinity management efforts.
The IEUA, the TVMWD, the WMWD, and/or other Party acting as a coordinating agency will establish or expand future integrated water resources planning efforts to address water supply reliability for all Watermaster Parties.
Watermaster will support the IEUA, the TVMWD, the WMWD, and/or others in their efforts to improve water supply reliability to ensure those efforts are integrated with Watermaster’s groundwater management efforts.

Implementation actions for the next 20 years by Program Element
Program Element 6
Re-convene the water quality committee and meet periodically to update groundwater quality management priorities.
Develop and implement an initial emerging contaminants monitoring plan.
Prepare a water quality assessment of the Chino Basin to evaluate the need for a *Groundwater Quality Management Plan* and prepare a long-term emerging contaminants monitoring plan.
Continue to support the Parties in identifying funding from outside sources to finance cleanup efforts.
Develop and implement a *Groundwater Quality Management Plan* and periodically update it.
Implement long-term emerging contaminants monitoring plan.
Continue to conduct investigations to assist the parties and/or the Regional Board in accomplishing mutually beneficial objectives as needed.
Implement projects of mutual interest.
Program Element 7
Complete the 2020 update of TDS and nitrate projections to evaluate compliance with maximum benefit salt and nutrient management plan, and, if necessary, based on the outcome, prepare a plan and schedule to implement a salt offset compliance strategy.
Continue to implement the maximum-benefit salt and nutrient management plan pursuant to the Basin Plan.
Starting in 2025 and every five years thereafter, update water quality projections to evaluate compliance with the maximum-benefit salt and nutrient management plan.
Program Element 8/9
Complete and submit to the Court the 2020 Safe Yield Recalculation.
Complete and submit to the Court the 2020 Storage Management Plan (SMP).
Develop a *Storage and Recovery Master Plan* to support the design of optimized storage and recovery programs that are consistent with the 2020 Storage Management Plan and provide the Watermaster with criteria to review, condition, and approve applications in a manner that is consistent with the Judgment and the Peace Agreement.
Assess losses from storage accounts based on the findings of the 2020 Safe Yield Recalculation.
Update the Storage Management Plan in 2025 and every five years thereafter, and when: • the Safe Yield is recalculated, • Watermaster determines a review and update is warranted based new information and/or the needs of the parties or the basin, and • at least five years before the aggregate amount of managed storage by the parties is projected to fall below 340,000 af
Perform safe yield recalculation every 10 years (2030, 2040).
Update the storage loss rate following each recalculation of Safe Yield (2030, 2040) and during periodic updates of the SMP.

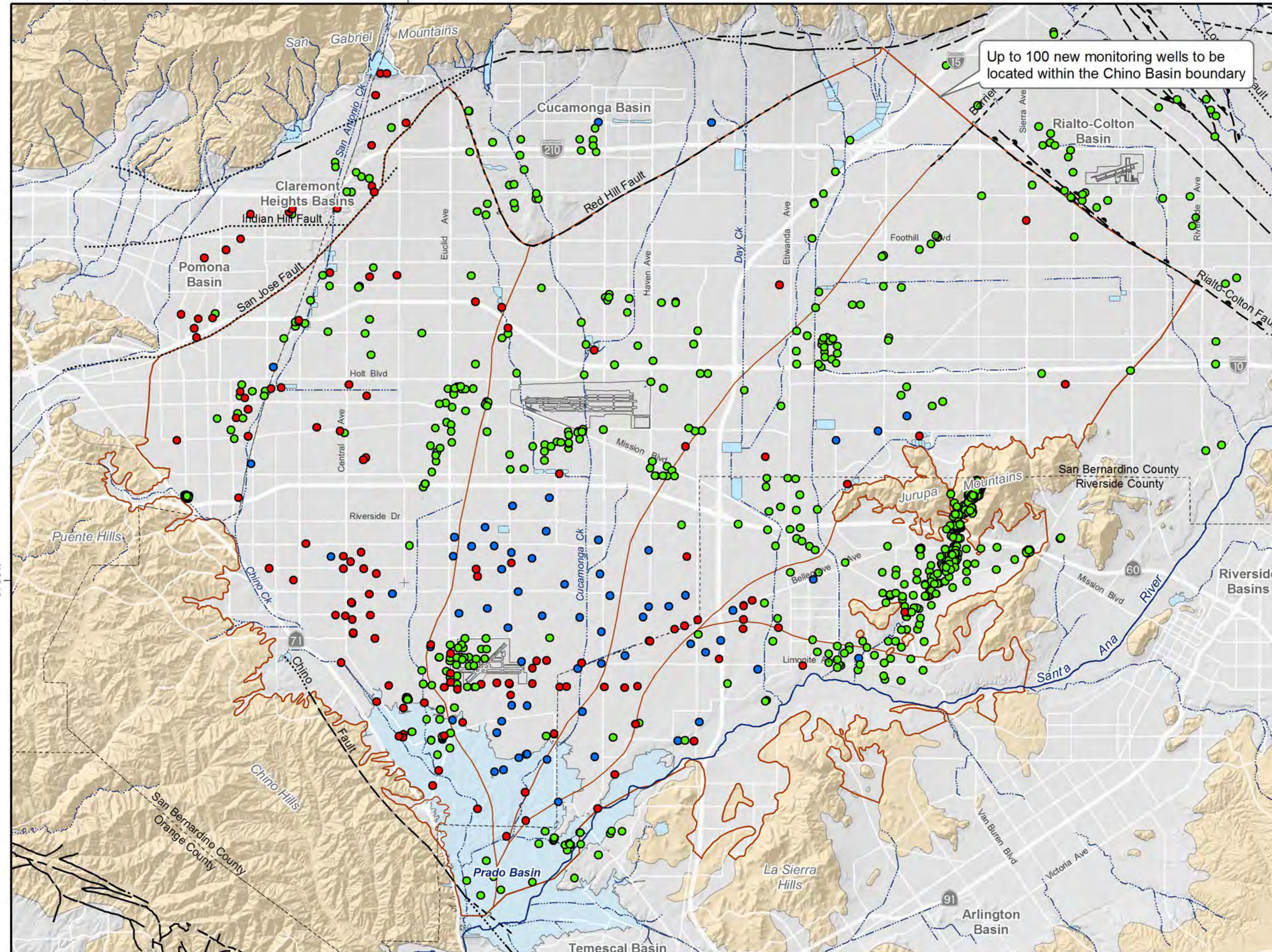
Actions in blue represent actions that are not in the 2000 OBMP ("new" actions).

Exhibit 5

List of facilities to be evaluated in CEQA	PE1	PE2	PE4	PE5	PE6	PE7	PE8/9
New monitoring wells	✓	✓	✓	✓	✓	✓	✓
New surface water and groundwater recharge monitoring facilities	✓	✓					✓
New meteorological monitoring facilities	✓	✓					✓
New meter installation at pumping wells	✓						
New extensometers	✓		✓				✓
New benchmarks	✓		✓				✓
New stormwater diversion, storage, transfer and recharge facilities		✓	✓	✓			✓
CIM storage facilities*		✓	✓	✓			✓
Flood MAR*		✓	✓	✓			✓
Regional conveyance:*		✓	✓	✓			✓
Lower Cucamonga Basin		✓		✓			✓
Mills Wetlands		✓		✓			✓
Riverside Basin		✓		✓			✓
Vulcan Basin *		✓		✓			✓
Confluence Project*		✓		✓			✓
Injection wells*		✓	✓	✓			✓
Treatment (for some sources)*		✓	✓	✓			✓
Restore WFA Agua de Lejos Treatment Plant capacity for in-lieu recharge		✓	✓	✓			✓
MS4 recharge project incentives		✓	✓				✓
Relocate pumping from MZ1 to MZ2/3 and southern portion of the Chino Basin and/or increase recharge in MZ1			✓				✓
New production wells*			✓				✓
Acquire supplemental water supplies*		✓		✓			
Regional conveyance				✓			✓
New dedicated regional conveyance facilities				✓			✓
North-south pipeline*				✓			✓
East-west pipeline*				✓			✓
Incorporate local conveyance facilities into a regional conveyance system*				✓			✓
Maximize recycled water reuse				✓			
Expand system for indirect reuse*				✓			
Advanced water treatment*				✓		✓	
Direct potable use*				✓			
New regional groundwater treatment plants (up to 10 mgd for local use; up to 30 mgd for export)*				✓	✓		✓
Expansion of existing groundwater treatment plants*				✓	✓		✓
Upgrade recycled water treatment plant to desalt effluent*						✓	
Maintain or increase groundwater pumping in Chino Creek Well Field (CCWF) area:							
New production wells in CCWF area*						✓	✓
Acquire wells in CCWF area*						✓	✓
New ASR wells in MZ2/3 north of Highway 60*							✓

*Includes conveyance infrastructure

Exhibit 6



Groundwater-Level Monitoring Program
Wells symbolized by Measurement Frequency

- Measurement by CBWM Staff - Monthly (69 wells)
- Measurement by Transducer - Every 15 Minutes (177 wells)
- Measurement by Owner at Various Frequencies (1,077 wells)

OBMP Management Zones

Streams & Flood Control Channels

Flood Control & Conservation Basins

Geology

Water-Bearing Sediments

Quaternary Alluvium

Consolidated Bedrock

Undifferentiated Pre-Tertiary to Early Pleistocene Igneous, Metamorphic, and Sedimentary Rocks

Faults

Location Certain
Location Concealed
Location Approximate
Location Uncertain
Approximate Location of Groundwater Barrier

Prepared by:

WEI
WILDERMUTH ENVIRONMENTAL, INC.

Author: SO
Date: 12/17/2019
File: 6.) Map of GWL.mxd

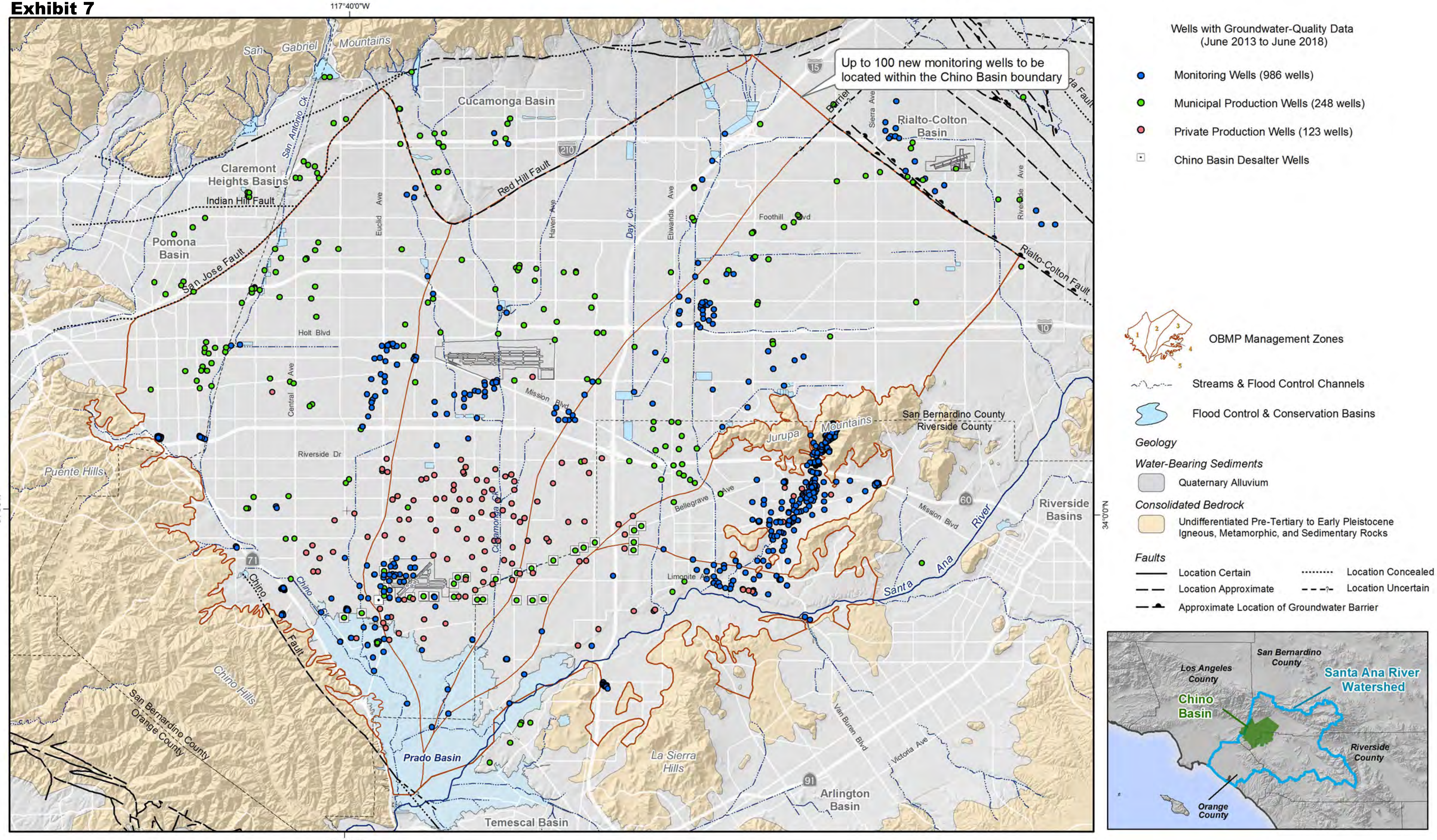
0 1 2 3 4 5 Miles
0 2 4 6 8 Km

Prepared for:
OBMP 2020 Update
Scoping Report

Groundwater-Level Monitoring
Well Location and Measurement Frequency
Fiscal Year 2017/18

Exhibit L-3

Exhibit 7



Prepared by:

WEI Wildermuth Environmental, Inc.

Author: SO
Date: 12/17/2019
File: 7.) Map of GWQ.mxd

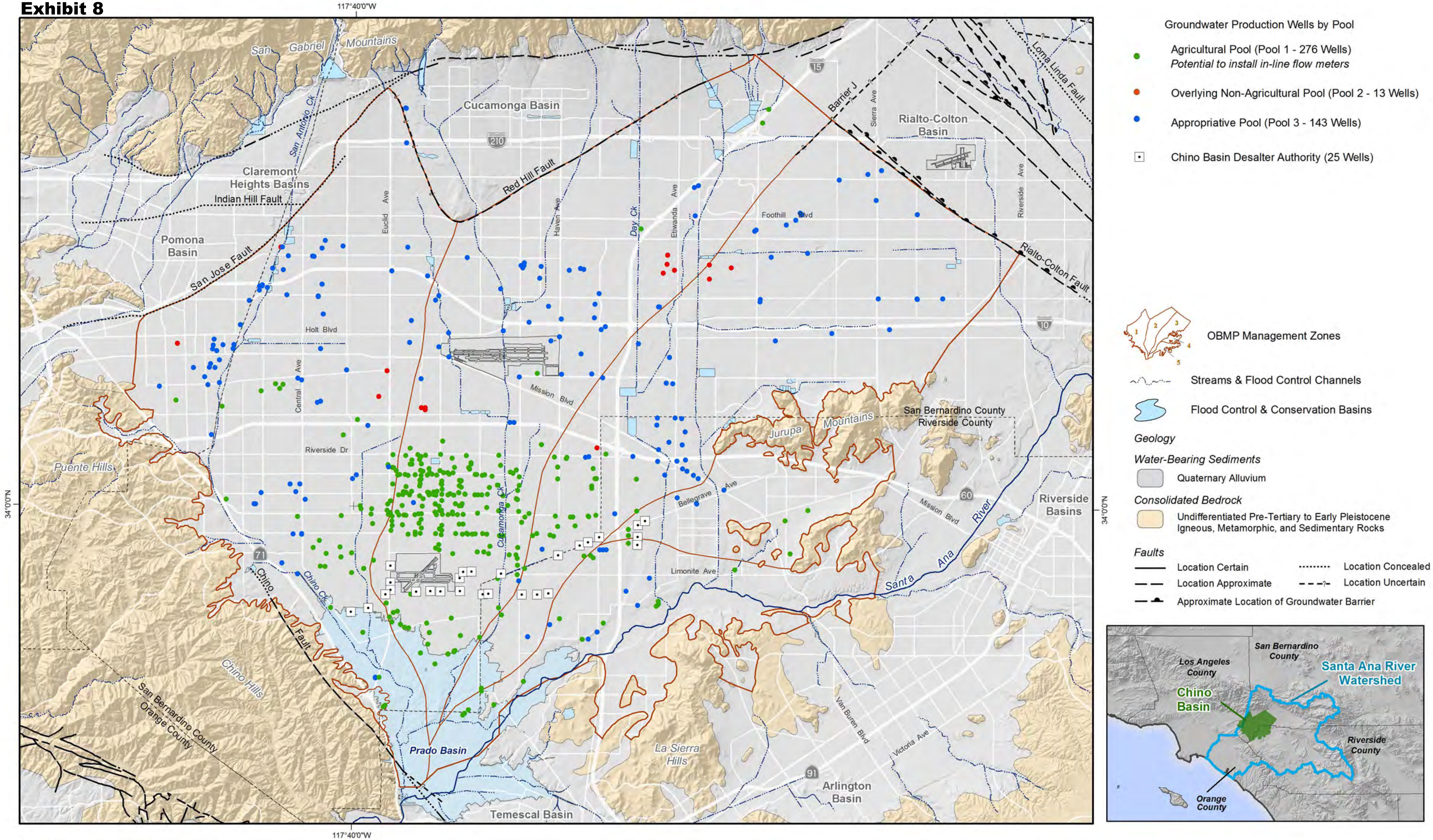
0 1 2 3 4 5 Miles
0 2 4 6 8 Km

Prepared for:
OBMP 2020 Update
Scoping Report

Groundwater-Quality Monitoring
July 2013 to June 2018

Exhibit L-4

Exhibit 8



Prepared by:

WEI WILDERMUTH ENVIRONMENTAL, INC.

Author: SO
Date: 12/16/2019
File: 8.) Map of GWP.mxd

Prepared for:

OBMP 2020 Update

Scoping Report

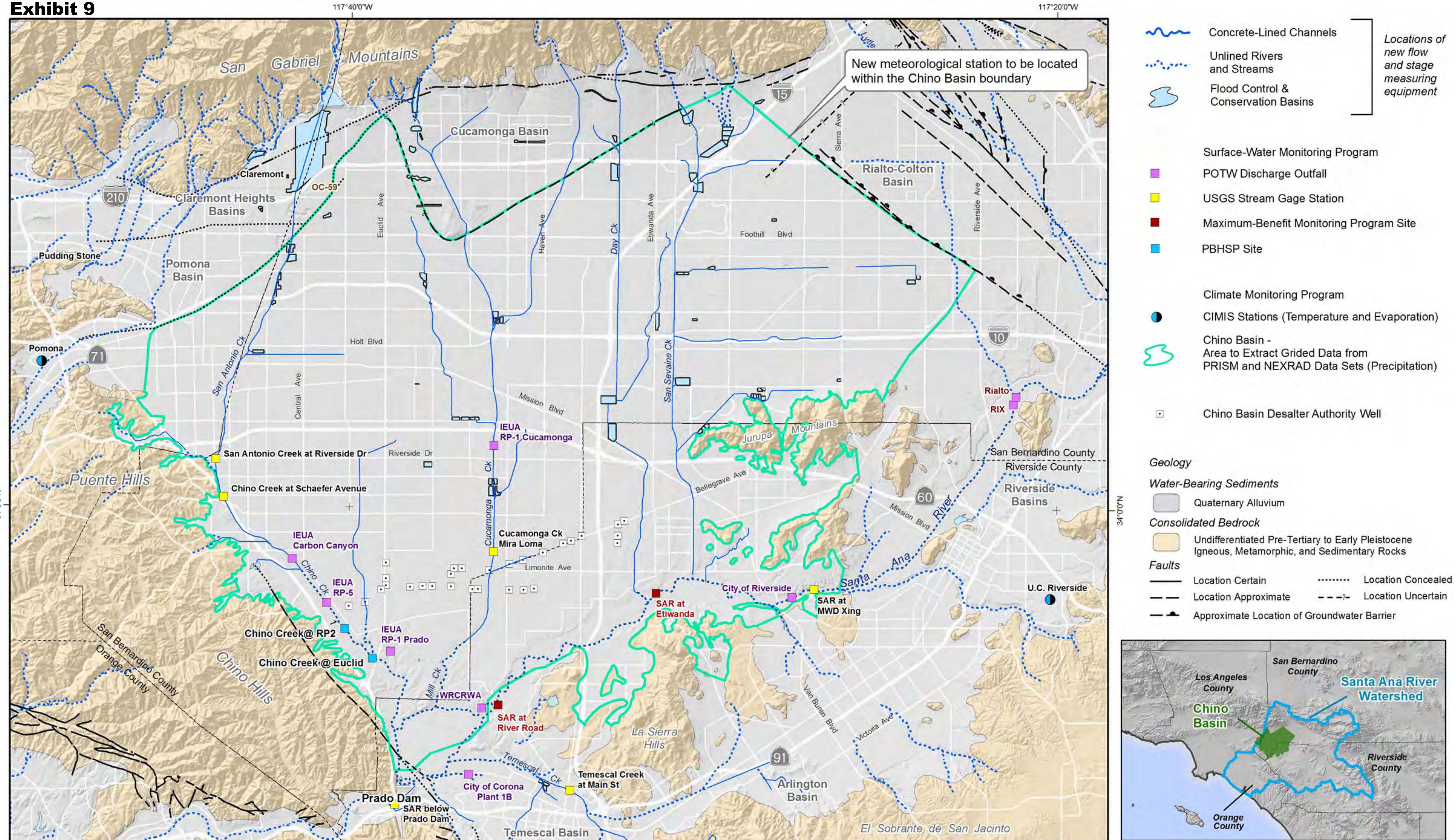
Chino Basin Watermaster — Partners in Basin Management

Groundwater-Production Monitoring

Fiscal Year 2017/18

Exhibit L-2

Exhibit 9



Prepared by:

WEI
WILDERMUTH ENVIRONMENTAL, INC.

Author: SO
Date: 12/19/2019
File: 9.) Map of SWQ

Prepared for:

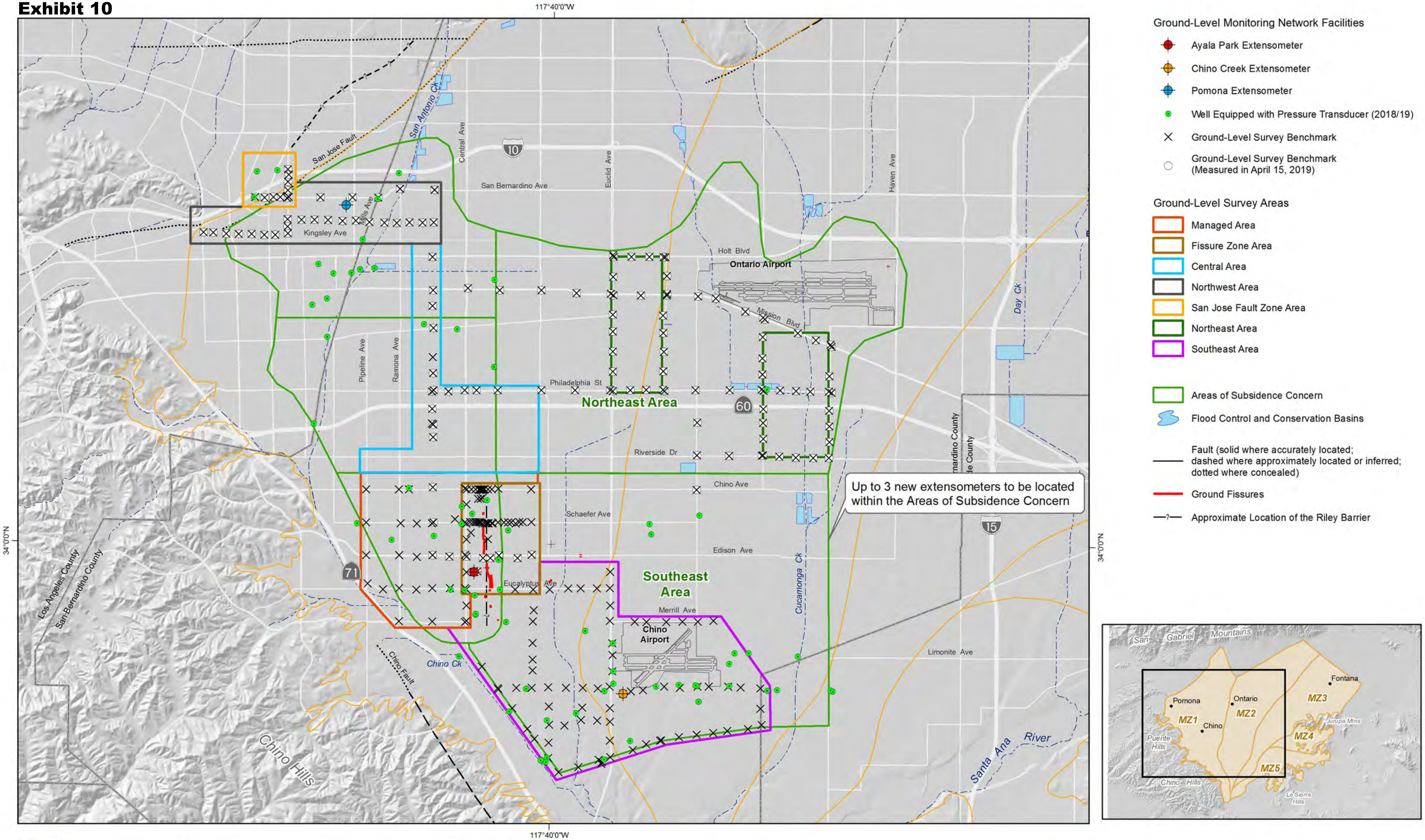
OBMP 2020 Update
Scoping Report

CHINO BASIN WATERMASTER
Partners in Basin Management

Surface-Water and Climate Monitoring

Exhibit L-5

Exhibit 10



Prepared by:

WEI
Wildermuth Environmental, Inc.

Author: NWS
Date: 12/18/2019
File: 10.) Subsidence Monitoring.mxd

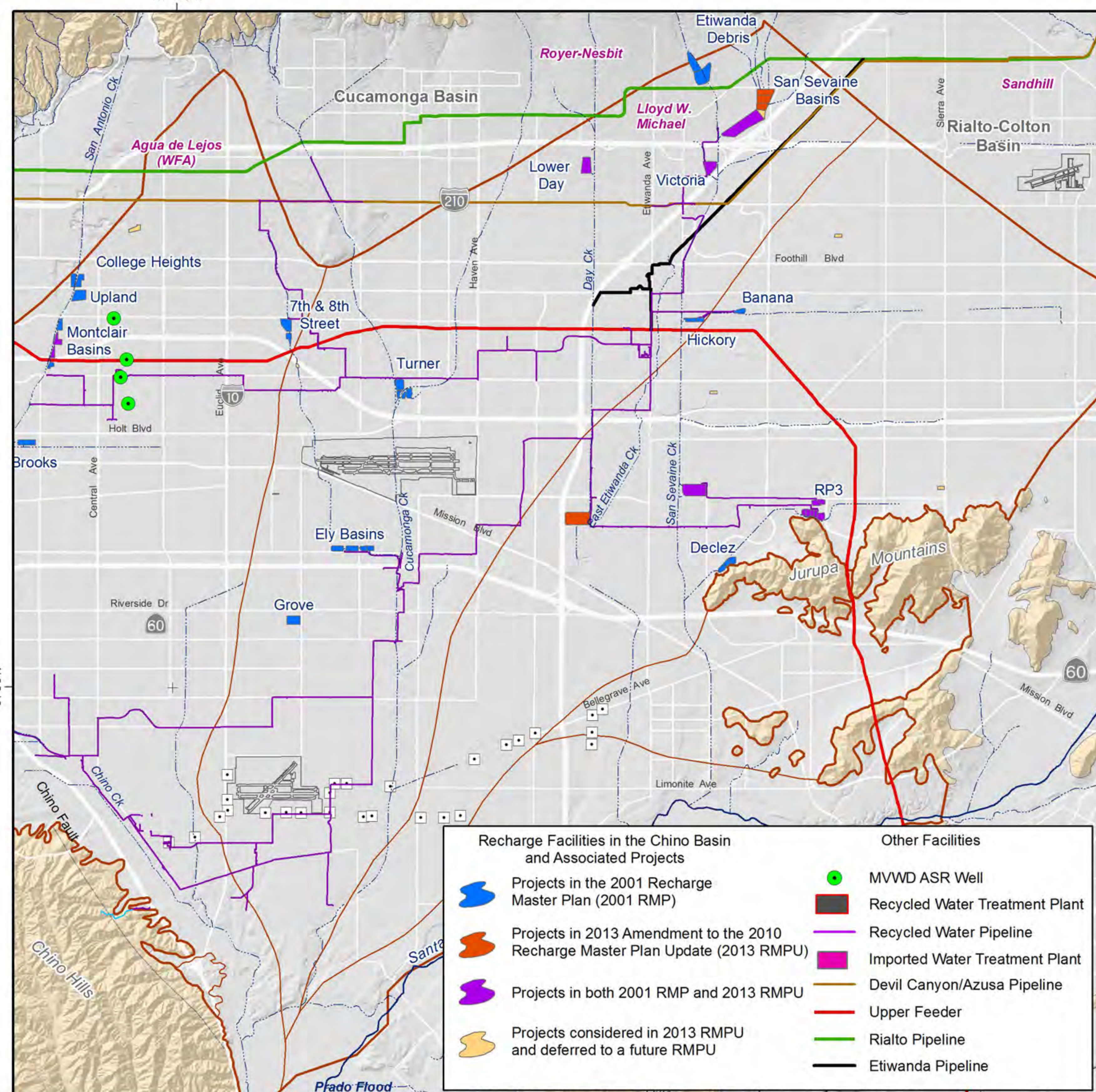
Prepared for:
OBMP 2020 Update
Scoping Report

Chino Basin Watermaster — Partners in Basin Management

Ground-Level Monitoring Network
Western Chino Basin

Exhibit L-6

Exhibit 11

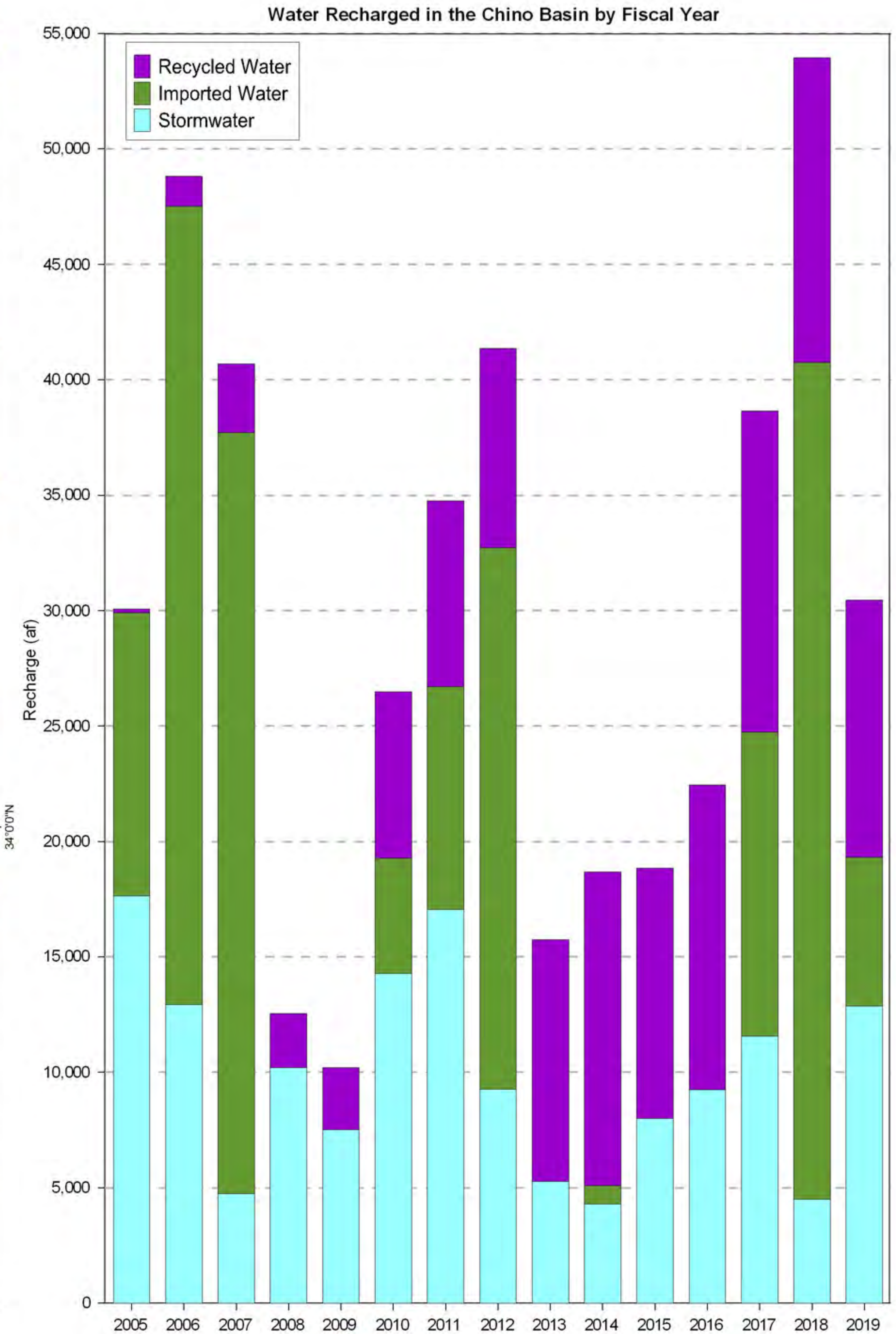


Prepared by:

WEI
WILDERMUTH ENVIRONMENTAL, INC.

Author: CS
Date: 20181129
File: 11.) Recharge Basin + Recharge Chart

0 1 2 3 4 5 Miles
0 2 4 6 8 Km



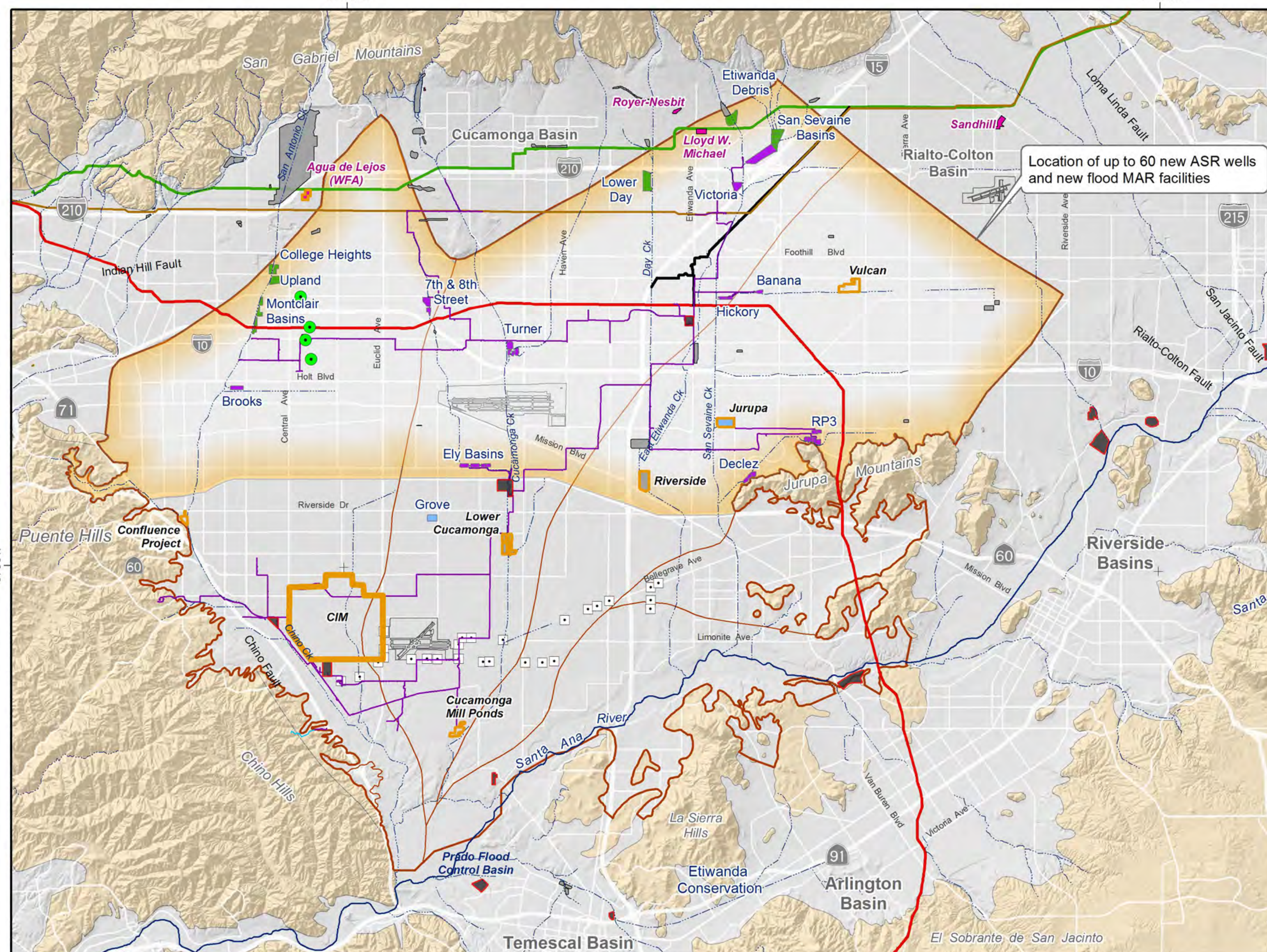
Prepared for:

2020 OBMP Update
Project Description

Groundwater Recharge in the Chino Basin

Exhibit 10

Exhibit 12



Prepared by:

WEI Wildermuth Environmental, Inc.

Author: CS
Date: 20181129
File: 12.) New Recharge Basins

0 1 2 3 4 5 Miles
0 2 4 6 8 Km

Prepared for:

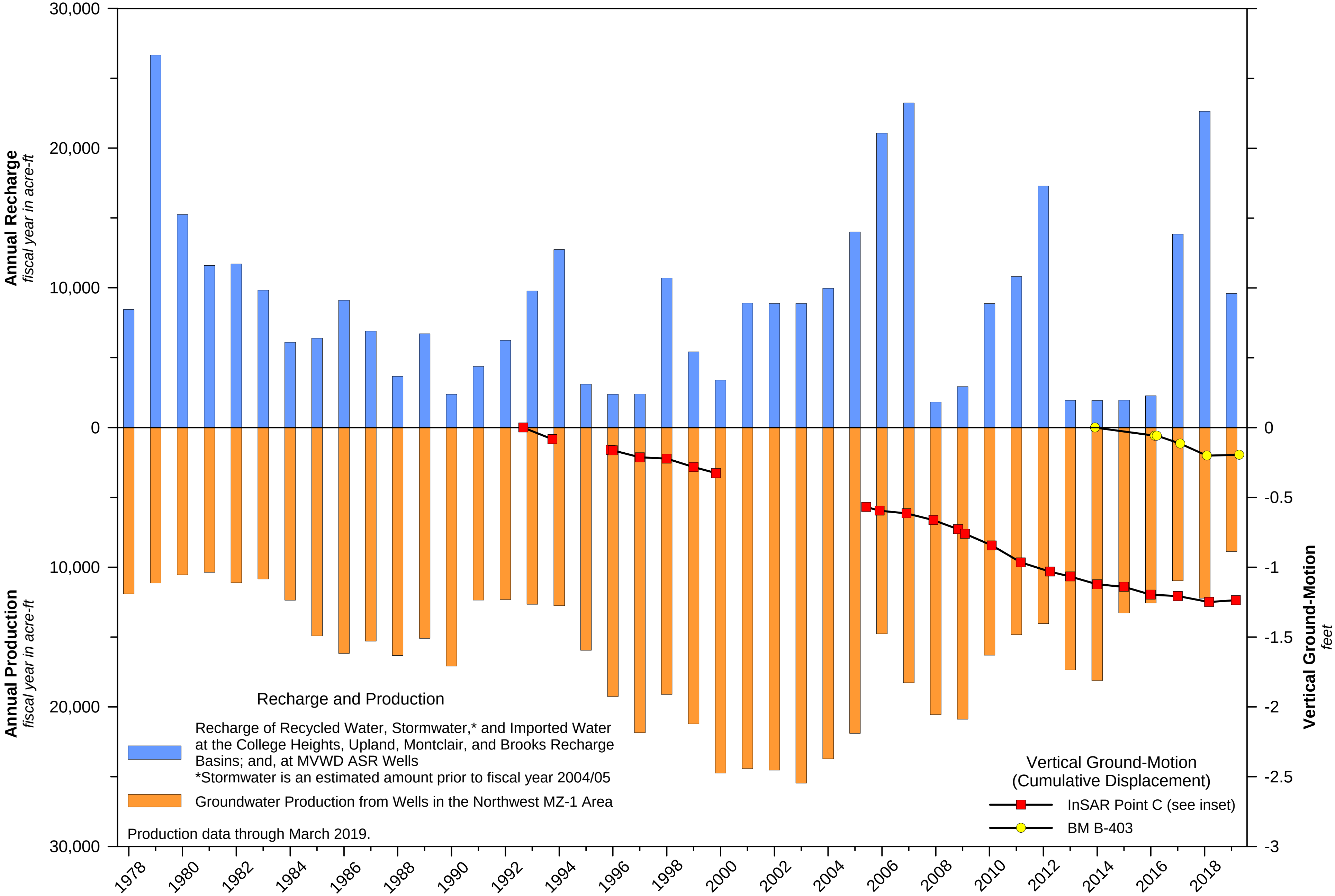
2020 OBMP Update
Project Description

Chino Basin Watermaster — Partners in Basin Management

Groundwater Recharge in the Chino Basin

Exhibit 11

Exhibit 13



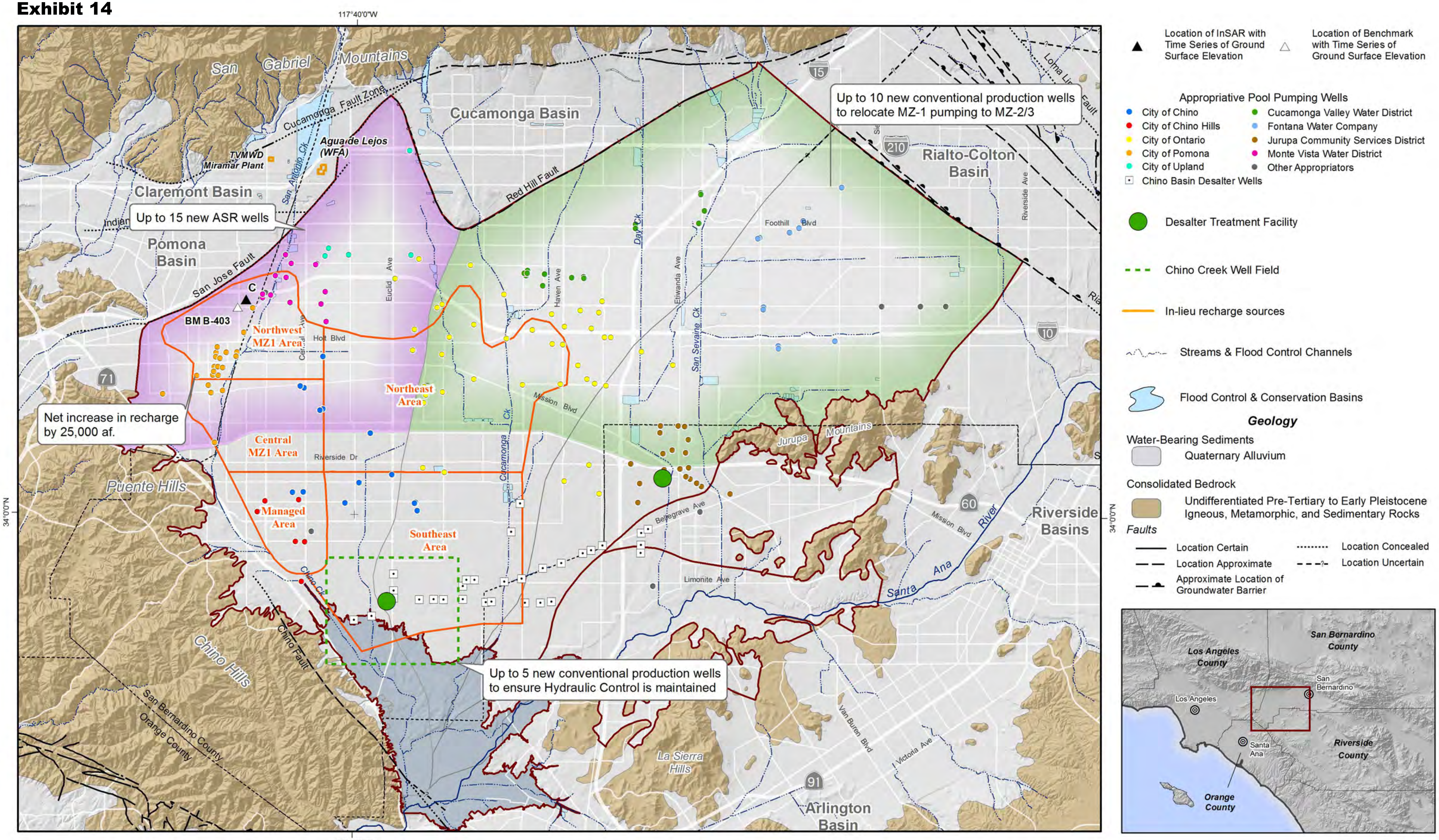
WEI
Wildermuth Environmental, Inc.

Prepared for:
OBMP 2020 Update
Scoping Report

Pumping, Recharge and Land Subsidence in the Northwest MZ-1 Area

Exhibit CG-3

Exhibit 14



Prepared by:

WEI
WILDERMUTH ENVIRONMENTAL, INC.

Author: LG
Date: 12/20/2019
Document Name: 14.) Map of Chino Basin Concerns_new

Prepared for:

OBMP 2020 Update
Project Description

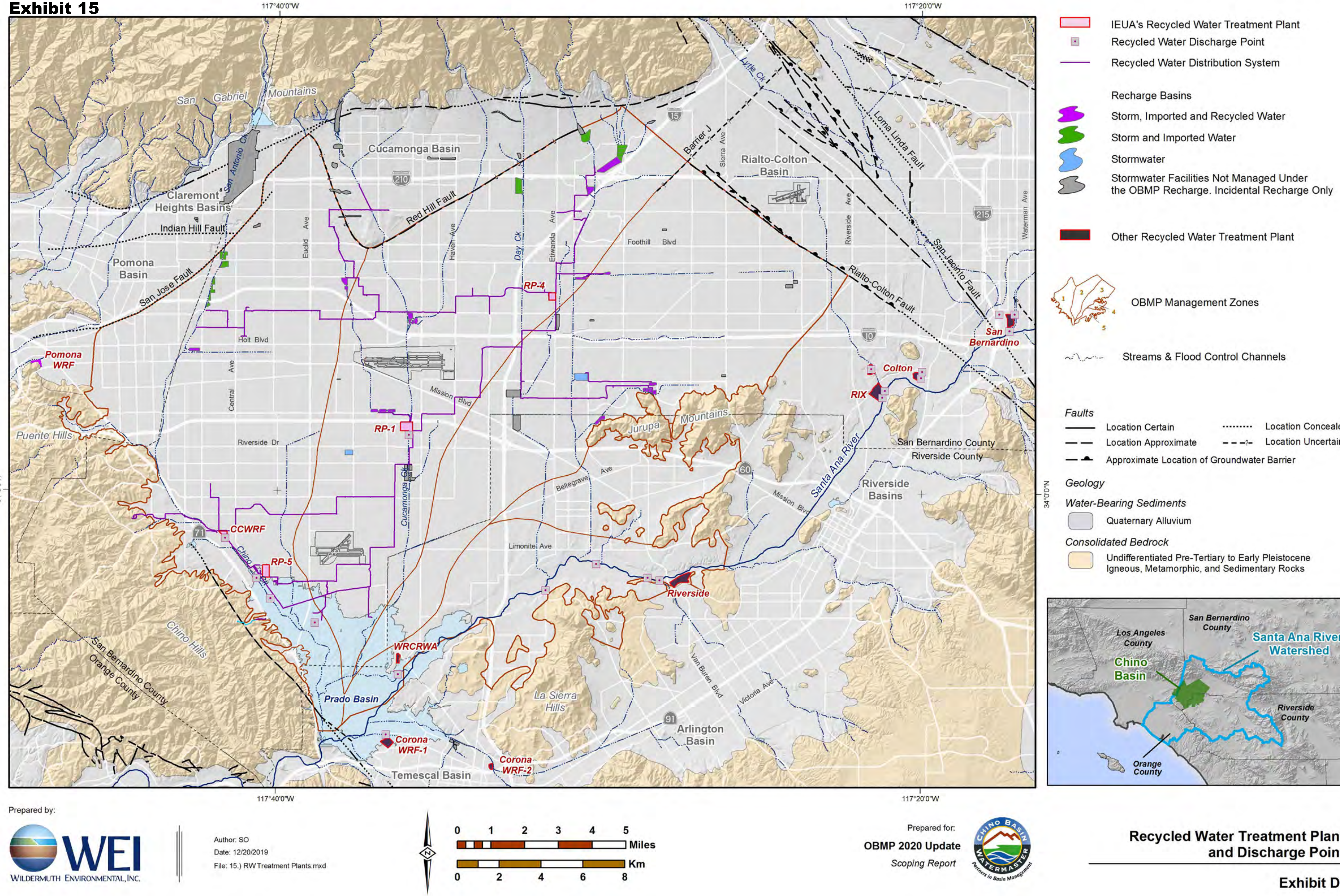
CHINO BASIN WATERMASTER

Chino Basin

OBMP Management Zones, Maximum Benefit Management Zones and Areas of Subsidence Concern

Figure 1-1

Exhibit 15



Prepared by:

WEI Wildermuth Environmental, Inc.

Author: SO
Date: 12/20/2019
File: 15.) RW Treatment Plants.mxd

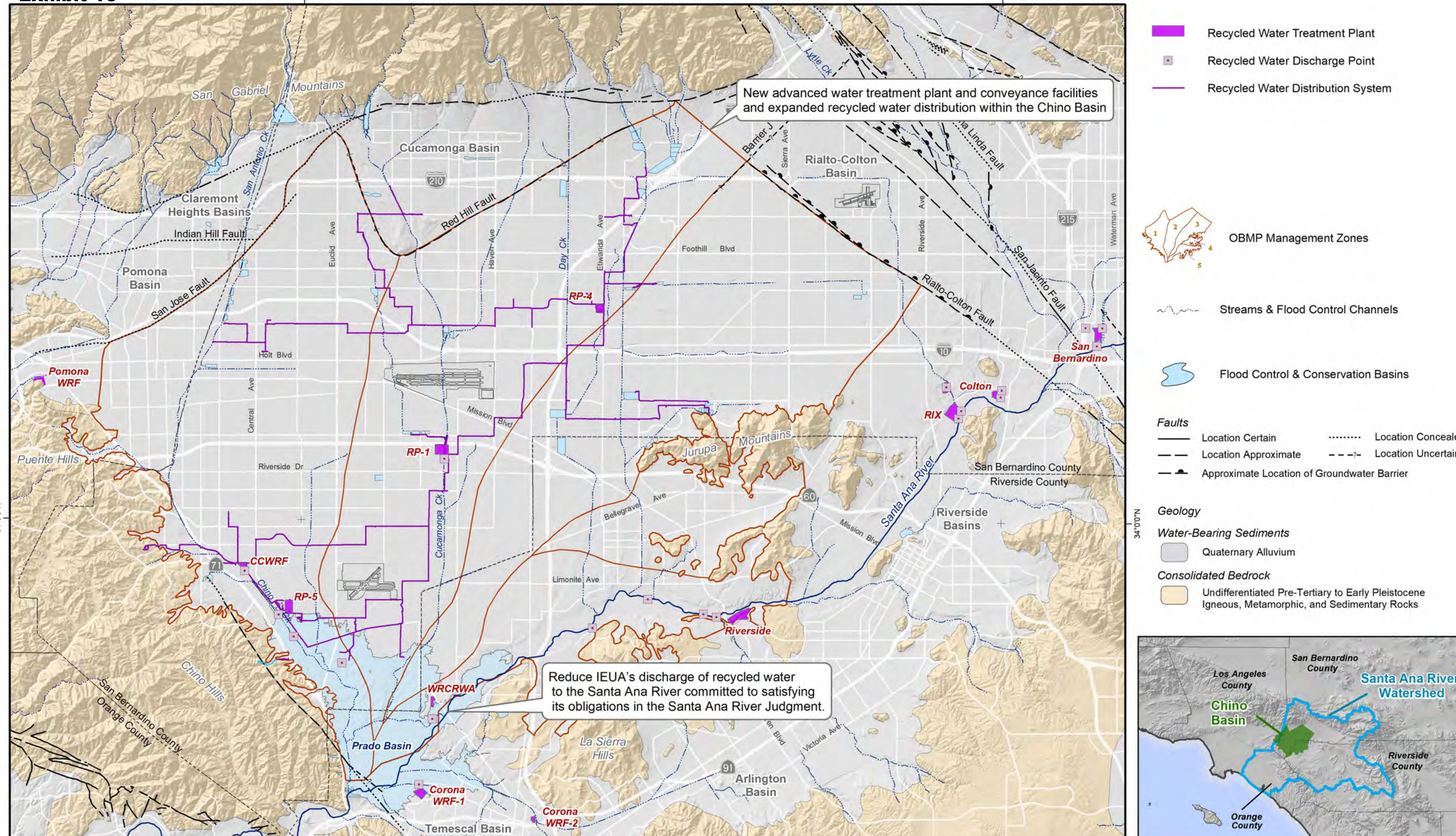
Prepared for:
OBMP 2020 Update
Scoping Report

Chino Basin Watermaster — Partners in Basin Management

Recycled Water Treatment Plants and Discharge Points

Exhibit D-1

Exhibit 16



Prepared by:

WEI
WILDERMUTH ENVIRONMENTAL, INC.

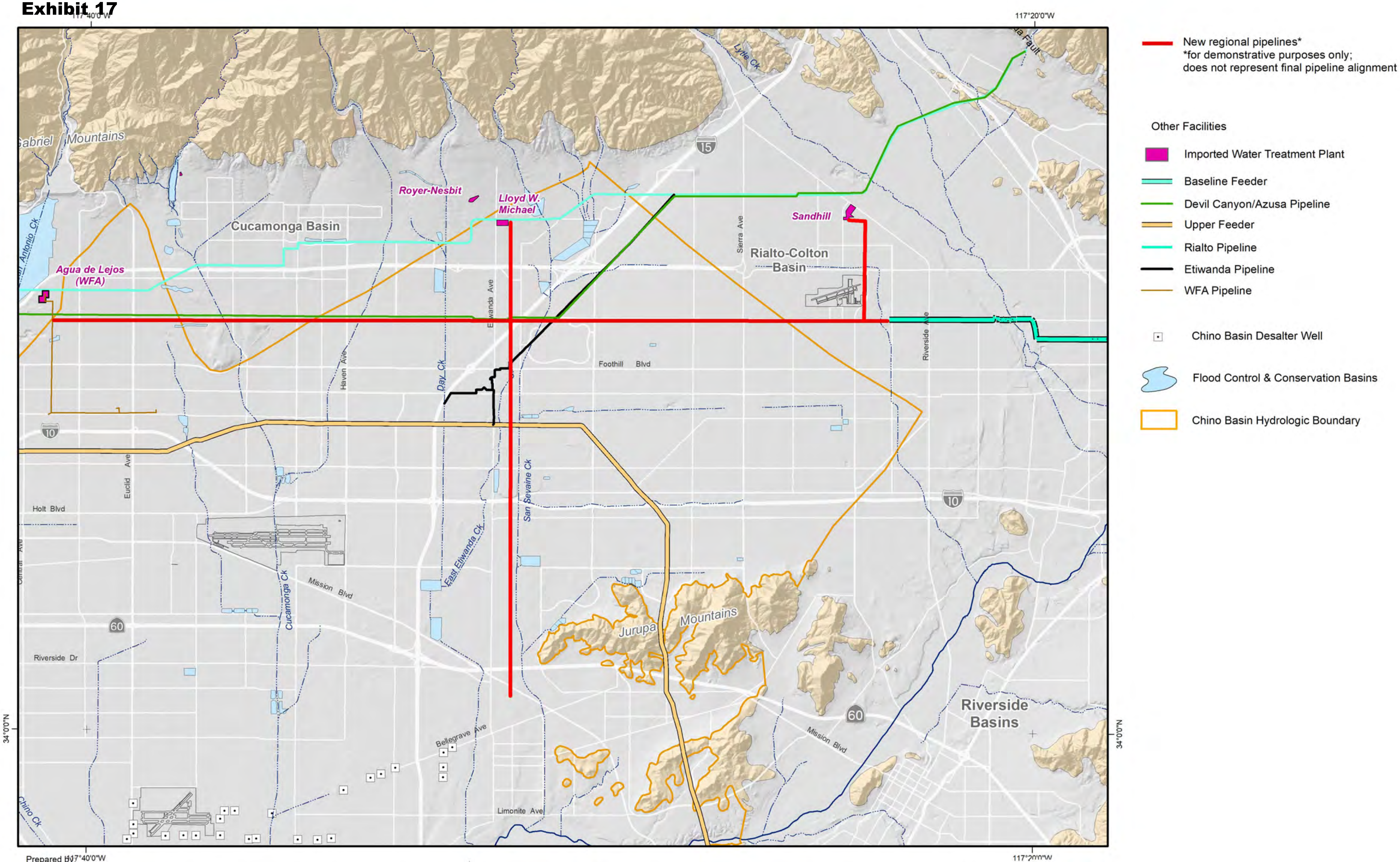
Author: SO
Date: 1/29/2020
File: 16.) New RW Treatment Plants.mxd

Prepared for:
OBMP 2020 Update
Scoping Report

CHINO BASIN WATERMASTER
Partners in Basin Management

Recycled Water Treatment Plants and Discharge Points

Exhibit 17



Prepared by:

WEI
WILDERMUTH ENVIRONMENTAL, INC.

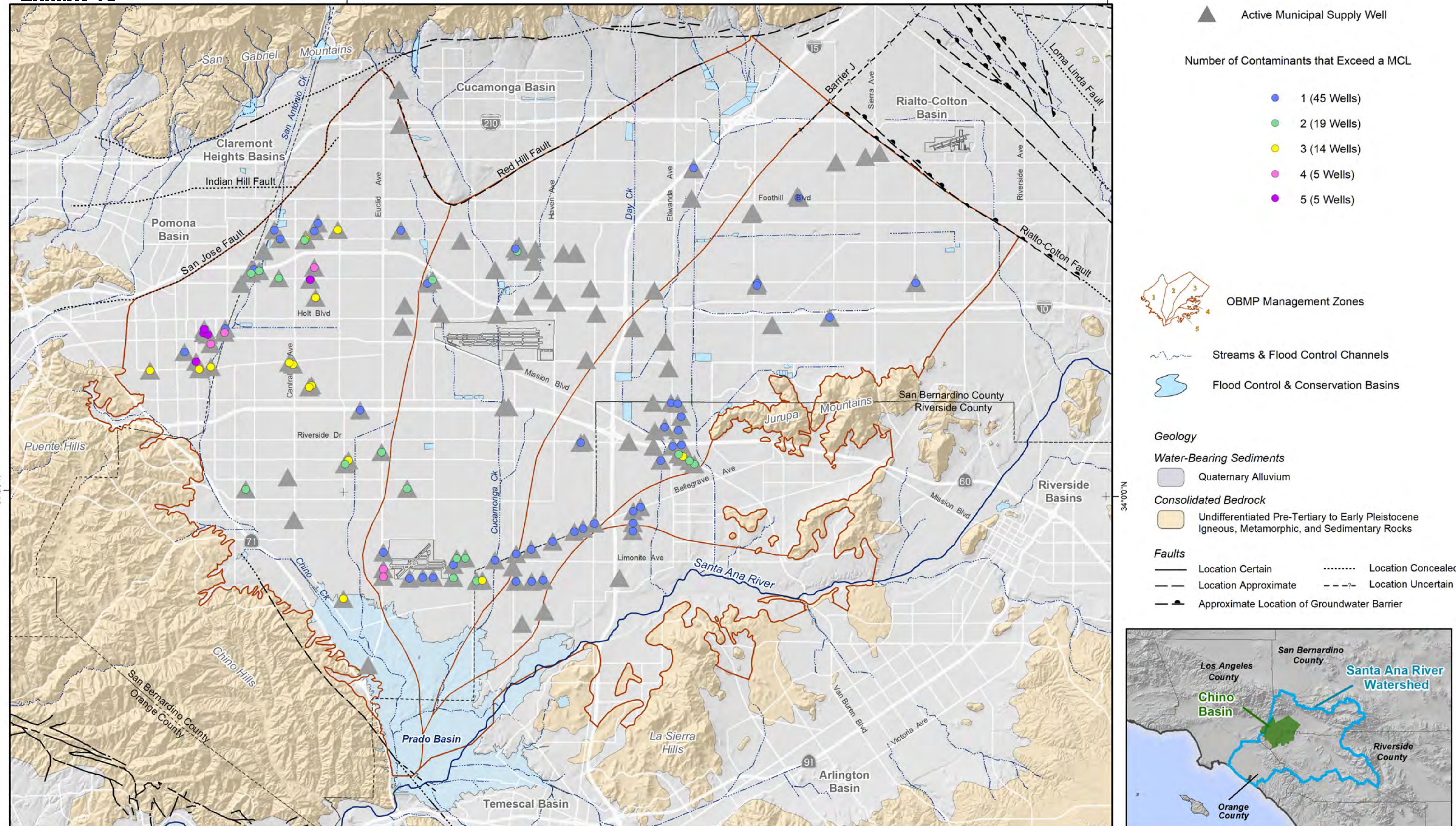
Author: CS
Date: 202001
File: 17.) Regional Pipelines

Prepared for:
2020 OBMP Update
Project Description

CHINO BASIN WATERMASTER
Partners in Basin Management

Regional Pipelines

Exhibit 18



Prepared by:

WEI
Wildermuth Environmental, Inc.

Author: CS
Date: 1/30/2020
File: 18.) Exceedance_Count.mxd

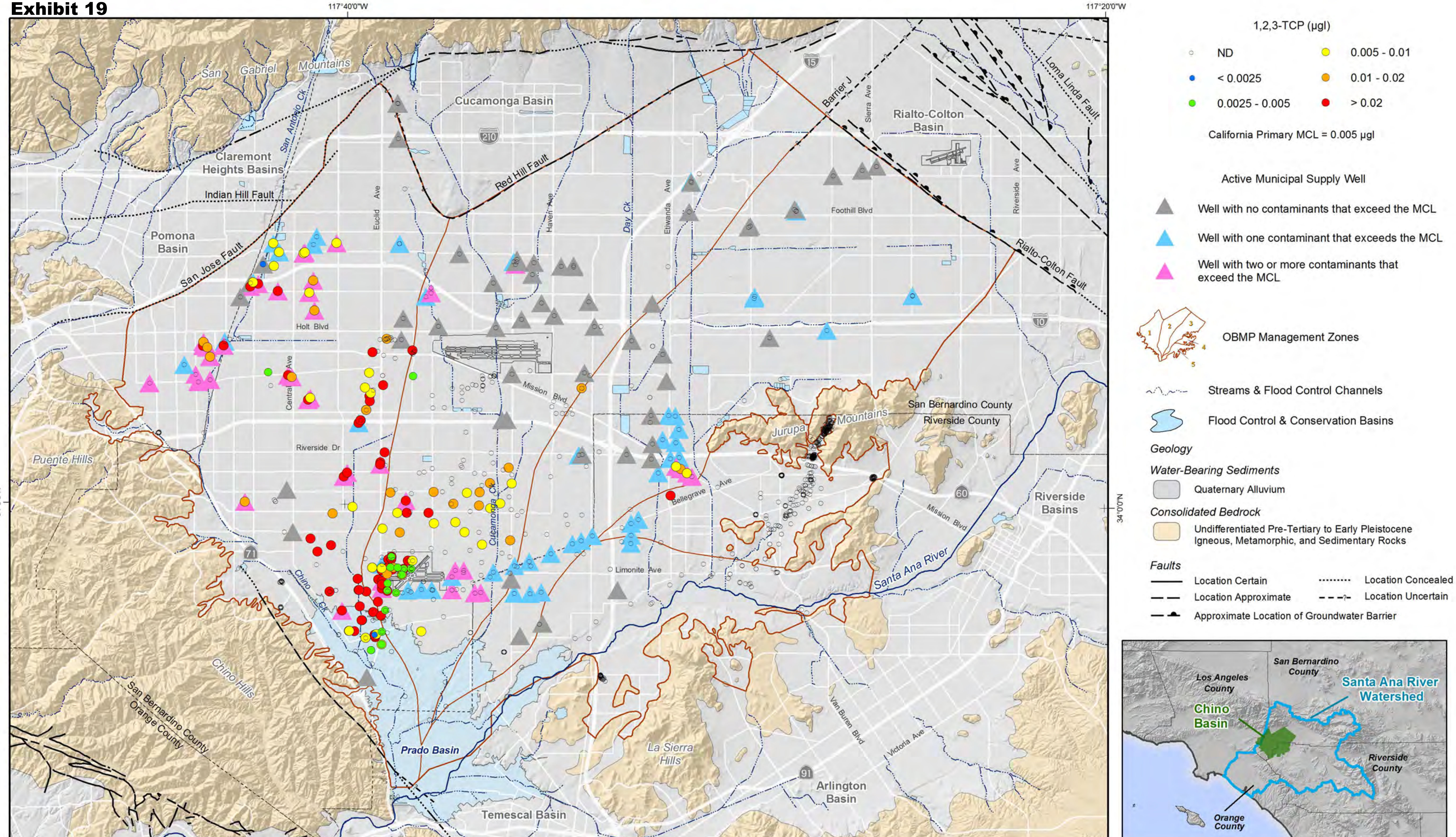
0 1 2 3 4 5 Miles
0 2 4 6 8 Km

Prepared for:
OBMP 2020 Update
Scoping Report

Chino Basin Watermaster

Occurrence of Drinking Water Contaminants in Active Municipal Supply Wells in Chino Basin
2014-2018

Exhibit 19



Prepared by:

WEI
Wildermuth Environmental, Inc.

Author: CS
Date: 12/16/2019
File: 19.) 1,2,3-TCP_2014-2018.mxd

0 1 2 3 4 5 Miles
0 2 4 6 8 Km

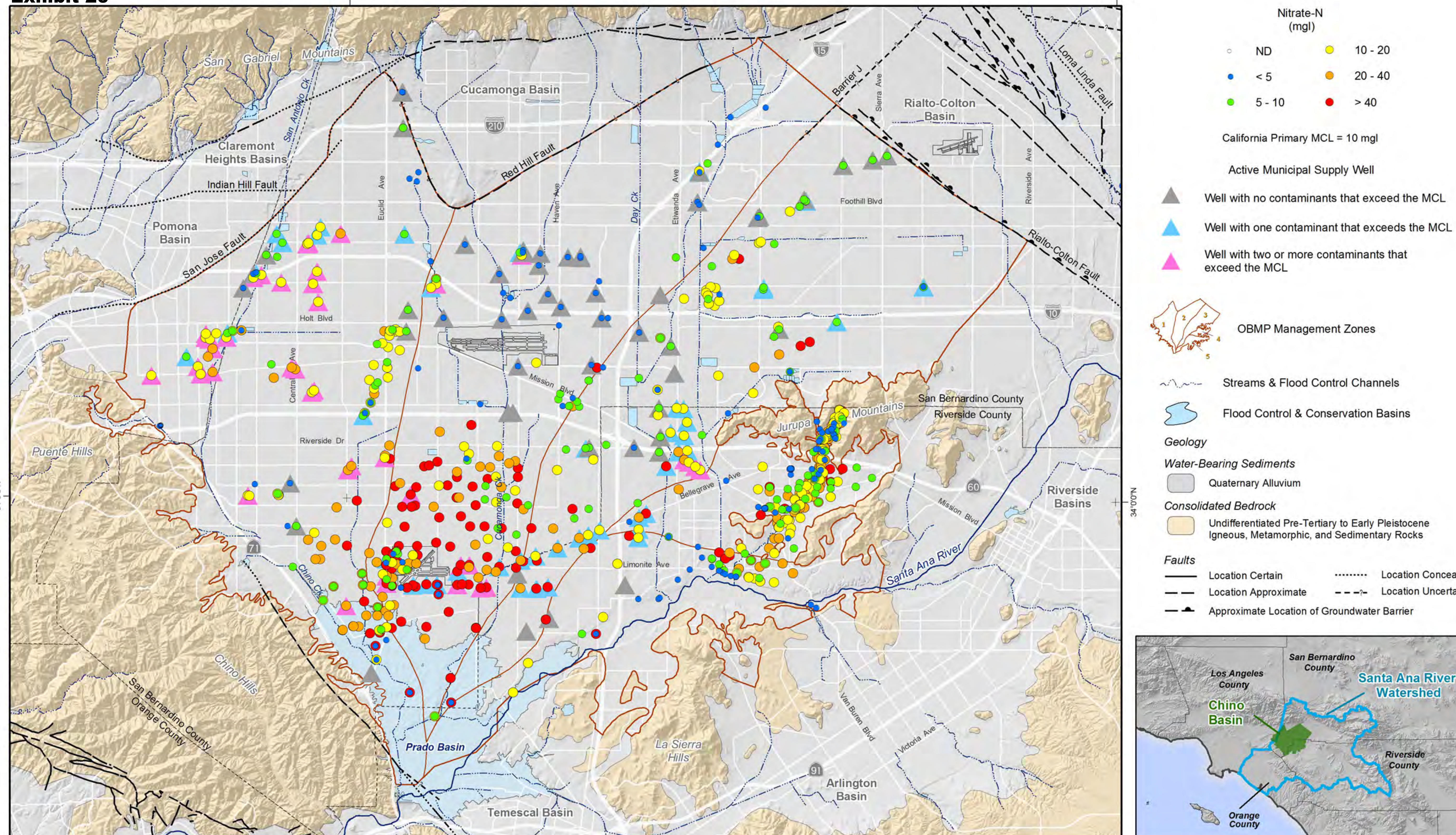
Prepared for:
OBMP 2020 Update
Scoping Report

Chino Basin Watermaster

Maximum 1,2,3-Trichloropropane (1,2,3-TCP) Concentration
2014-2018

Exhibit EF-4

Exhibit 20



Prepared by:

WEI Wildermuth Environmental, Inc.

Author: CS
Date: 12/16/2019
File: 20.) NO3_2014-2018.mxd

0 1 2 3 4 5 Miles
0 2 4 6 8 Km

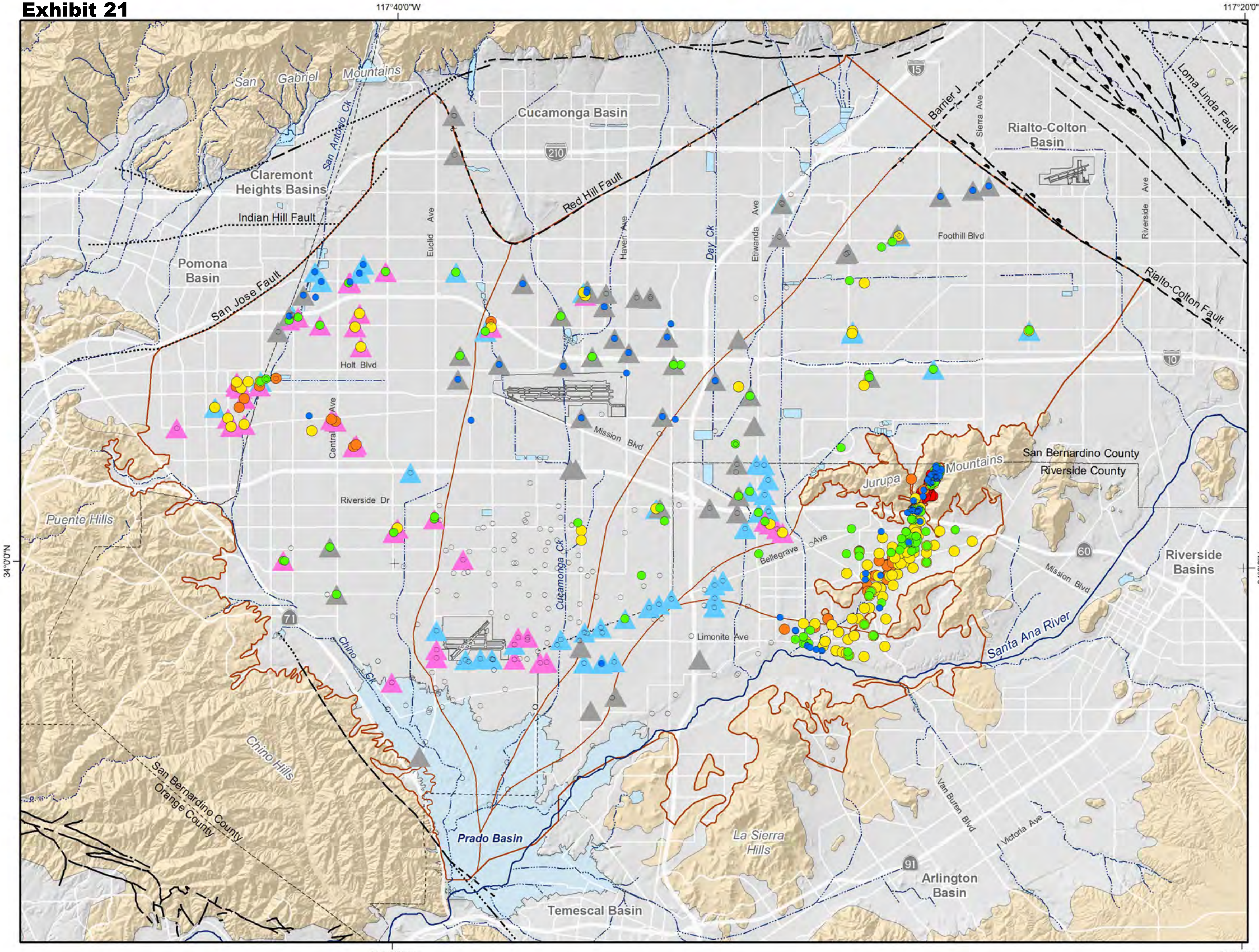
Prepared for:
OBMP 2020 Update
Scoping Report

Chino Basin Watermaster — Partners in Basin Management

Maximum Nitrate Concentration
2014-2018

Exhibit EF-3

Exhibit 21



Perchlorate (µgl)

- ND
- < 3
- 3 - 6
- 6 - 12
- 12 - 24
- > 24

California Primary MCL = 6 µgl

Active Municipal Supply Well

- Well with no contaminants that exceed the MCL
- Well with one contaminant that exceeds the MCL
- Well with two or more contaminants that exceed the MCL

OBMP Management Zones

Streams & Flood Control Channels

Flood Control & Conservation Basins

Geology

Water-Bearing Sediments

Quaternary Alluvium

Consolidated Bedrock

Undifferentiated Pre-Tertiary to Early Pleistocene Igneous, Metamorphic, and Sedimentary Rocks

Faults

- Location Certain
- Location Approximate
- Approximate Location of Groundwater Barrier
- Location Concealed
- Location Uncertain

Prepared by:

WEI
Wildermuth Environmental, Inc.

Author: CS
Date: 12/16/2019
File: 21.) CLO4_MCL_2014-2018.mxd

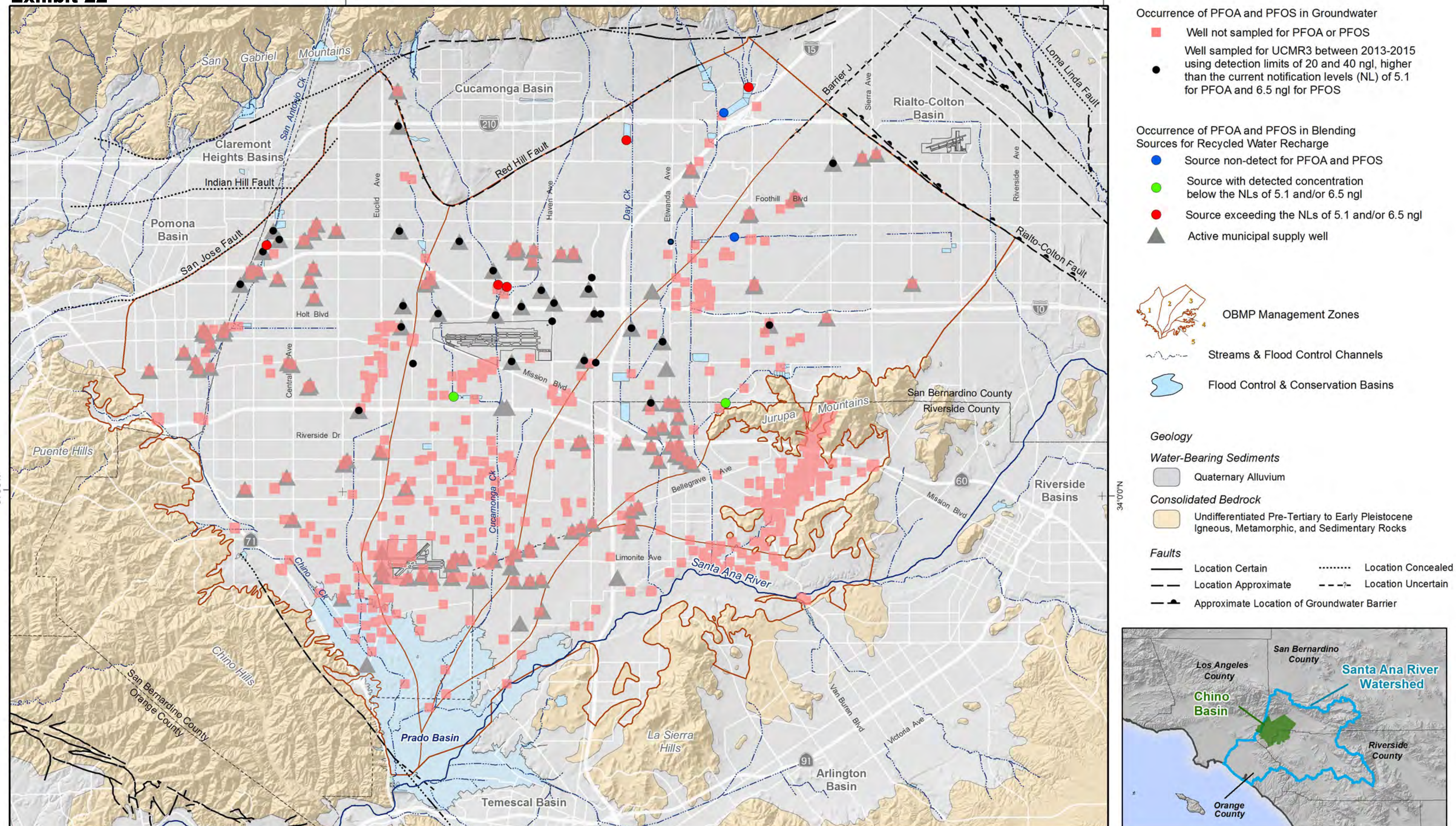
0 1 2 3 4 5 Miles
0 2 4 6 8 Km

Prepared for:
OBMP 2020 Update
Scoping Report

Maximum Perchlorate Concentration
2014-2018

Exhibit EF-5

Exhibit 22



Prepared by:

WEI
WILDERMUTH ENVIRONMENTAL, INC.

Author: CS
Date: 12/18/2019
File: 22.) PFAS_1998-2019.mxd

0 1 2 3 4 5 Miles
0 2 4 6 8 Km

Prepared for:
OBMP 2020 Update
Scoping Report

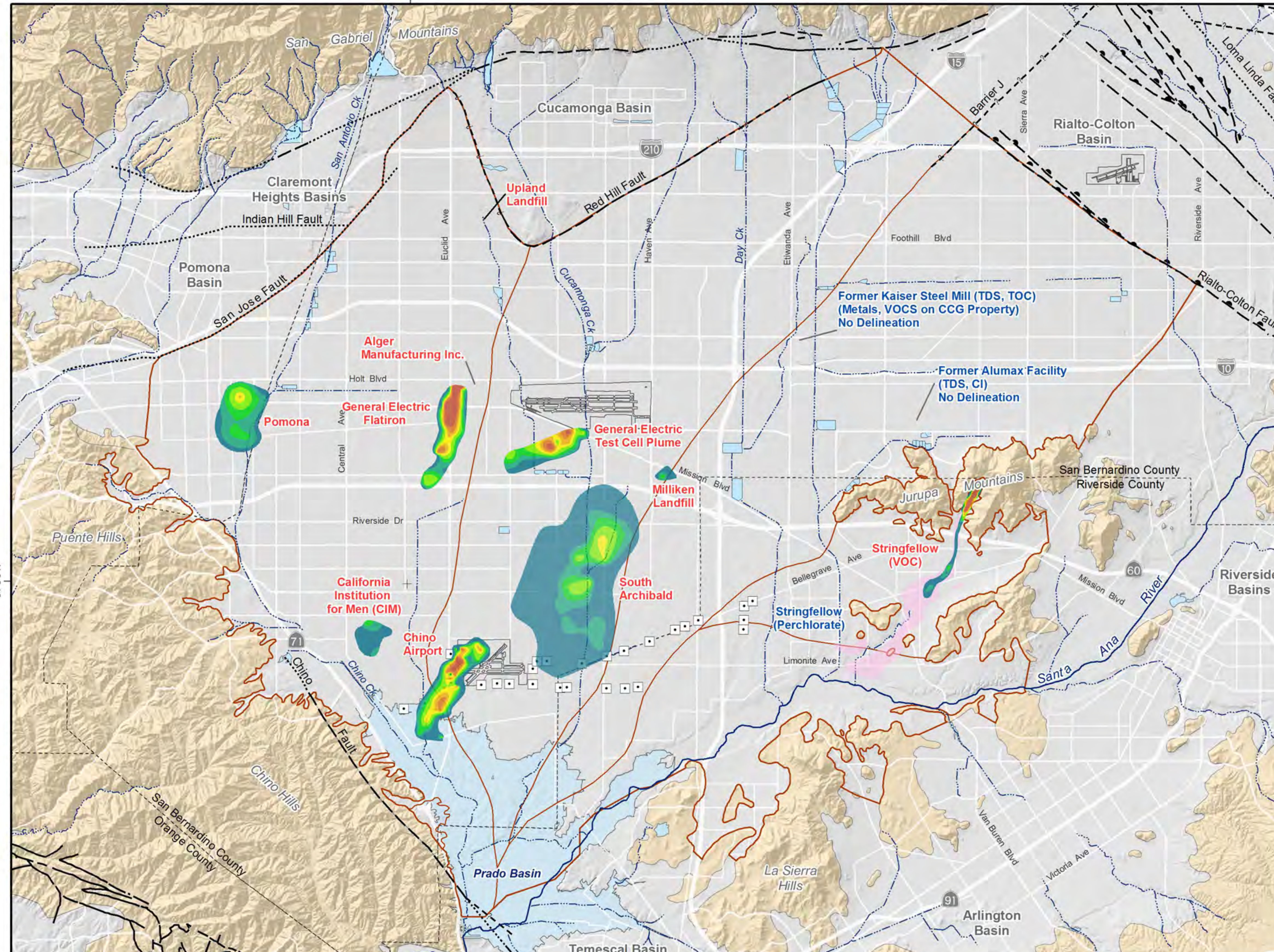
CHINO BASIN WATERMASTER
Partners in Basin Management

PFOA and PFOS Concentrations
Through March 2019

Exhibit EF-10

Exhibit 23

117°40'0"W



34°0'0"N

117°40'0"W

VOC Concentration (µgl)

- > 0 to ≤ 5
- > 5 to ≤ 10
- > 10 to ≤ 20
- > 20 to ≤ 50
- > 50 to ≤ 100
- > 100 to ≤ 200
- > 200 to ≤ 500
- > 500

The VOC plumes shown on this map are generalized illustrations of the estimated spatial extent of TCE or PCE, based on the maximum concentration measured at wells over the five-year period of July 2013 to June 2018. The VOC plume illustrations were created with the grid function in Golden Software's Surfer 16 using an ordinary kriging interpolation model with model input parameter estimation and optimization performed by semivariogram analysis in Golden Software's Surfer 16. Interpretations of the plume extent and boundary delineation were made based on measured concentrations and local groundwater flow patterns as predicted by the Chino Basin groundwater flow model.

VOC Plumes Labeled in Red by Name

Other Plumes - Labeled in Blue by Name and Dominant Contaminant

The plumes characterized by color ramp represent Watermaster's most recent characterization of the primary contaminant of concern. The spatial extent of the VOC contamination was delineated by Watermaster based on the five-year maximum concentrations of the primary contaminant of concern for the period of July 2013 to June 2018. The primary VOC contaminant of concern in all of the plumes is TCE with the exception of the CIM plume, which is PCE. The VOC plumes associated with the Upland Landfill and the Alger Manufacturing Facility are of limited geographical extent at the scale of this map, so only their general locations are identified.

Other point-source contamination plumes in the Chino Basin include the former Kaiser Steel Mill, the former Alumax Facility, and the Stringfellow NPL Site, which are labeled by name and the primary contaminants associated with the sites. The former Kaiser Steel Mill TDS and total organic carbon (TOC) plume has not been delineated since 2008 (WEI, 2008b), and there are no plume delineations for the contamination associated with the former Kaiser Steel Mill CCG Property for metals and VOCs or the former Alumax Facility for TDS and chloride (Cl). The Stringfellow perchlorate plume shown here was delineated in the most recent remediation evaluation report for the site (Kleinfelder, 2018).

Prepared by:

WEI
Wildermuth Environmental, Inc.

Author: LH
Date: 12/16/2019
File: 23.) Plumes_new_txt.mxd

0 1 2 3 4 5 Miles
0 2 4 6 8 Km

Prepared for:

2018 State of the Basin Report
Groundwater Quality

Chino Basin Watermaster — Partners in Basin Management

Delineation of Groundwater Contamination
Plumes and Point Sources of Concern

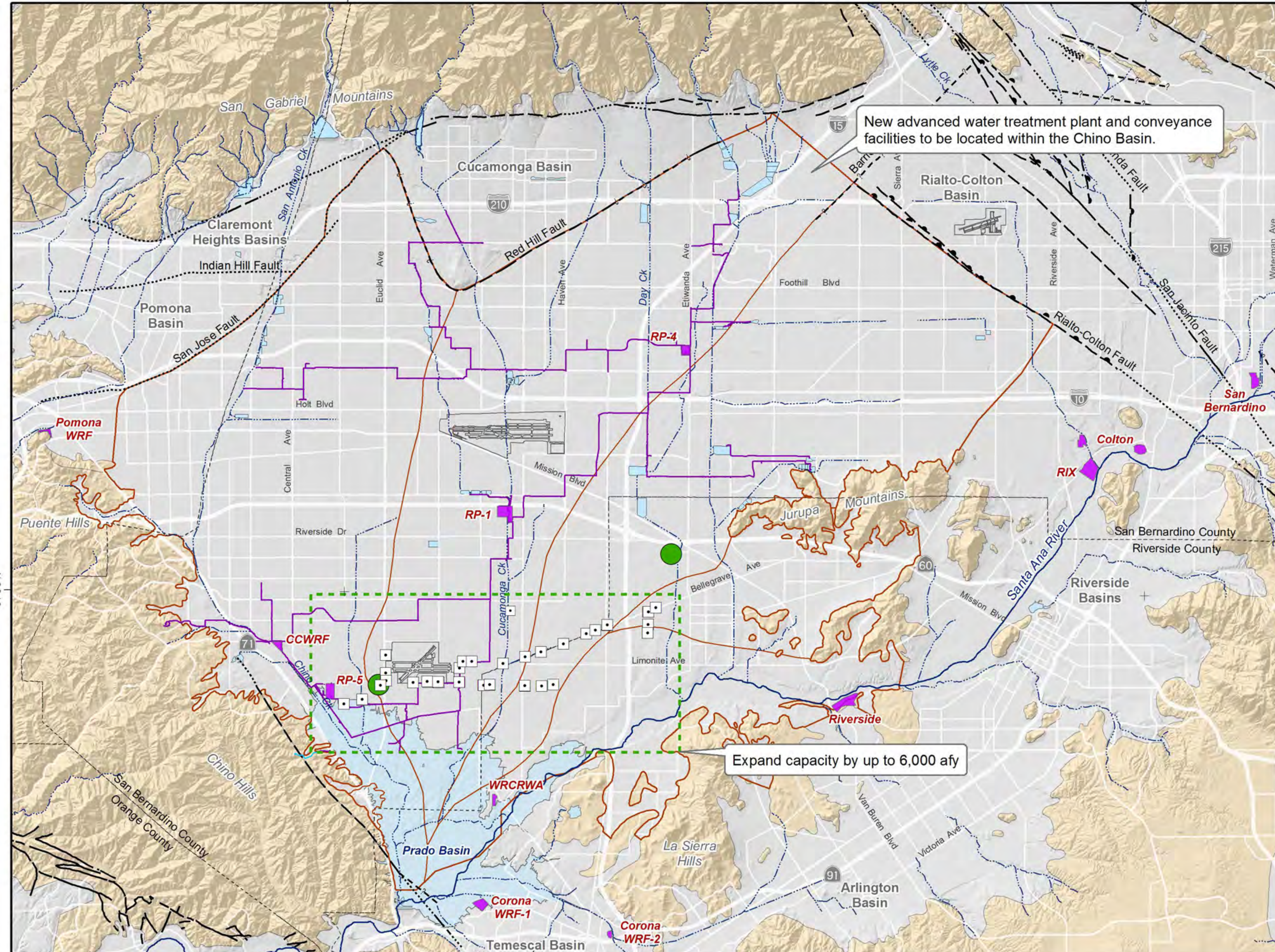
Exhibit 5-15

Exhibit 24

Exhibit 15
Limitations, Compliance Metrics, and Compliance Actions for the Chino Basin Maximum-Benefit Commitments

Source Waters with Water Quality Limitations in the Chino Basin SNMP	Water Quality Limitation	Compliance Metric	Action Limit	Required Compliance Action when Compliance Metric Exceeds the Action Limit
IEUA Recycled Water (Commitment 6)	TDS: 550 mgl	The agency-wide, 12-month running-average concentration	When the compliance metric exceeds 545 mgl for three consecutive months	Submit to the Regional Board for approval a plan and schedule to comply with the water quality limitations within 60 days.
	TIN: 8 mgl		When the compliance metric exceeds 8 mgl in any month	
Combined water sources used for managed recharge: storm, imported and recycled waters (Commitment 7)	TDS: 420 mgl Nitrate: 5 mgl	The five-year, volume-weighted running-average concentration of all sources of managed recharge	TDS: 420 mgl Nitrate: 5 mgl	Prepare a salt offset plan to mitigate salt loading from recharge greater than 420 mgl. Offsets could include desalting of recycled water or groundwater, or increased recharge of low-TDS waters.
Groundwater (Commitment 9)	TDS: 420 mgl	The volume-weighted concentration of groundwater in the Chino North GMZ (computed every three years)	TDS: 420 mgl	Reduce the TDS concentration of IEUA recycled water to comply with the maximum-benefit TDS objective or prepare a salt offset plan to mitigate loading from the use of recycled water than 420 mgl.
	Nitrate: 5 mgl		n/a	This action limit was already exceeded when the objective was established. So long as all other maximum benefit commitments are met, no compliance action is required.

Exhibit 25



Recycled Water Treatment Plant*

*New treatment train at one or more IEUA plants to reduce the TDS concentration to levels to ensure compliance with its permits

Recycled Water Distribution System

Desalter Treatment Facility

Chino Basin Desalter Well

OBMP Management Zones

Streams & Flood Control Channels

Flood Control & Conservation Basins

Faults

Location Certain

Location Approximate

Approximate Location of Groundwater Barrier

Location Concealed

Location Uncertain

Geology

Water-Bearing Sediments

Quaternary Alluvium

Consolidated Bedrock

Undifferentiated Pre-Tertiary to Early Pleistocene Igneous, Metamorphic, and Sedimentary Rocks

Prepared by:

WEI
WILDERMUTH ENVIRONMENTAL, INC.

Author: SO
Date: 12/20/2019
File: 25.) Exhibit D-1_RW Treatment Plants.mxd

0 1 2 3 4 5 Miles
0 2 4 6 8 Km

Prepared for:
OBMP 2020 Update
Scoping Report

Recycled Water Treatment Plants and Discharge Points

Exhibit D-1

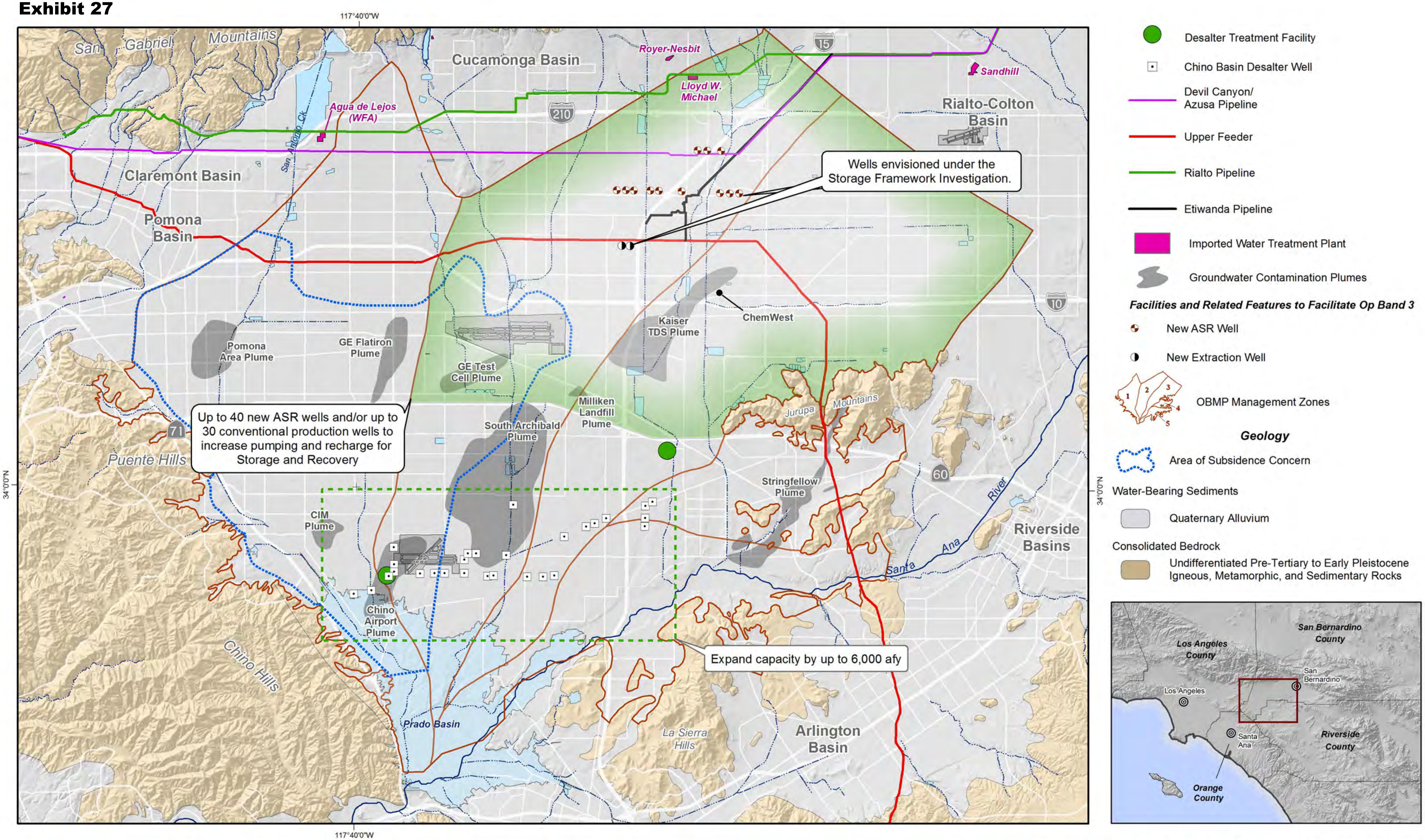
Exhibit 26

Exhibit 16
Ending Balances in Managed Storage in the Chino Basin[1]
(af)

Fiscal Year ending June 30	Appropriative Pool				Overlying Non-Agricultural Pool			Total Managed Storage by Parties	Dry Year Yield Program Storage	Total Managed Storage
	Carryover	Excess Carryover	Local Supplemental Storage	Subtotal	Carryover	Excess Carryover	Subtotal			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8) = (7) + (4)	(9)	(10) = (9) + (8)
2000	28,911	170,342		199,253	6,541	31,031	37,572	236,825	0	236,825
2001	15,940	77,907	92,813	186,660	5,301	32,330	37,631	224,291	0	224,291
2002	13,521	70,103	87,801	171,425	5,285	33,727	39,012	210,437	0	210,437
2003	18,656	71,329	81,180	171,165	6,743	36,850	43,593	214,758	7,738	222,496
2004	21,204	70,503	80,963	172,670	7,177	40,881	48,058	220,728	26,300	247,028
2005	21,289	76,080	88,849	186,218	7,227	45,888	53,115	239,333	38,754	278,087
2006	32,062	56,062	86,170	174,294	7,227	49,178	56,405	230,699	58,653	289,352
2007	34,552	50,895	83,184	168,631	7,084	51,476	58,560	227,191	77,116	304,307
2008	41,626	83,962	81,520	207,108	6,819	45,248	52,067	259,175	74,877	334,052
2009	42,795	101,908	79,890	224,593	6,672	46,600	53,272	277,865	34,494	312,359
2010	41,263	120,897	90,133	252,293	6,934	47,732	54,666	306,959	8,543	315,502
2011	41,412	146,074	98,080	285,566	6,959	49,343	56,302	341,868	0	341,868
2012	42,614	209,981	116,138	368,733	6,914	13,993	20,907	389,640	0	389,640
2013	39,413	225,068	116,378	380,859	7,073	15,473	22,546	403,405	0	403,405
2014	41,708	224,496	123,484	389,688	6,478	12,812	19,290	408,978	0	408,978
2015	40,092	239,517	127,994	407,603	6,823	12,225	19,048	426,651	0	426,651
2016	39,733	248,013	131,522	419,267	7,195	9,949	17,144	436,411	0	436,411
2017	38,340	260,682	143,552	442,575	7,226	8,292	15,519	458,093	6,315	464,408
2018	34,582	254,221	155,018	443,821	7,198	10,775	17,973	461,795	41,380	503,174
2019	38,605	279,033	166,406	484,044	7,227	12,004	19,231	503,275	45,969	549,244

1 -- WEI. (2019). Draft Storage Management Plan.

Exhibit 27



Prepared by:

WEI
WILDERMUTH ENVIRONMENTAL, INC.

Author: GAR
Date: 12/20/2019
Document Name: 27.) MZ-2_3_ASR Additions

Prepared for:
Storage Framework Investigation

CHINO BASIN WATERMASTER
Partners in Basin Management

Siting of New ASR and Extraction Wells to Facilitate Storage and Recovery Programs in Op Band 3

Figure 6-2a

CHAPTER 4 – ENVIRONMENTAL IMPACT EVALUATION

All Chapter 4 figures are located at the end of each subchapter; not immediately following their reference in text.

4.1 BACKGROUND

The Inland Empire Utilities Agency (IEUA or Agency) serves as wholesale imported water distributor for the Chino Groundwater Basin (Chino Basin), provides industrial/municipal wastewater collection and treatment and other related utility services for the western portion of the Santa Ana River watershed in the southwestern-most portion of San Bernardino County. The IEUA, in coordination with the Chino Basin Watermaster, has prepared a Draft Subsequent Environmental Impact Report (DSEIR) to evaluate the potential significant environmental impacts that may result from implementing the Optimum Basin Management Program Update (OBMPU).

The Optimum Basin Management Program (OBMP) is a regional water resources and groundwater management program for the Chino Basin. The location of the Chino Basin is shown on Exhibit 1. On January 2, 1975, several Chino Basin groundwater producers filed suit in the California State Superior Court for San Bernardino County (Court) to settle the problem of allocating water rights in the Chino Basin. On January 27, 1978, the Court entered a judgment in “Chino Basin Municipal Water District v. City of Chino et. al.” (Judgment). The Judgment adjudicated the groundwater rights of the Chino Basin, established the Chino Basin Watermaster (Watermaster or CBWM)—a Court created entity—to administer the Judgment, and contains a Physical Solution to meet the requirements of water users having rights in or dependent upon the Chino Basin. Exhibit 2 shows the adjudicated boundary as it is legally defined in the Judgment, the hydrologic boundary, the Chino Basin management zones, and the groundwater management zones defined by the Santa Ana Regional Water Quality Control Board (Regional Board) in the Water Quality Control Plan for the Santa Ana River Basin (Basin Plan).

Because the CBWM is not considered a public agency, the IEUA will serve as the Lead Agency for the implementation of the proposed Optimum Basin Management Program Update environmental documentation to comply with the California Environmental Quality Act (CEQA). Actual implementation of the OBMPU activities—outlined in Chapter 3: Project Description—may be carried out by the CBWM or any of its member agencies/stakeholders in the Chino Basin through the planning period, 2020 through 2050.

The Chino Basin Watermaster functions as a unique entity that has been created by the court as outlined above. The Watermaster is composed of a Board that consists of member agencies from three groups: an Appropriative Pool, Non-Appropriative Pool, and Agricultural Pool, and four other public agencies (see below), effectively the water producers in the Chino Basin. Please refer to Appendix 2 for a list of all Appropriative Pool, Non-Appropriative Pool, and Agricultural Pool participants. These member agencies are henceforth referred to as either “stakeholders” or “the parties.”

Watermaster, at the direction of the Court, began developing the original OBMP in 1998 and completed it in July 2000. The OBMP was developed in a collaborative public process that identified the needs and wants of all stakeholders, described the physical state of the groundwater basin, defined a set of management goals, characterized impediments to those goals, and developed a series of actions that could be taken to remove the impediments and achieve the management goals. The Parties entered into the Peace I Agreement in June 2000. In July 2000, the IEUA certified a

Program Environmental Impact Report (PEIR) for the OBMP, which was based on the Peace I Agreement between stakeholders in the Chino Groundwater Basin.

In the years following the certification of the PEIR for the OBMP, the work to implement the OBMP determined that the groundwater production of the Chino Basin Desalters would ultimately need to be expanded by 40,000 acre-feet per year (afy) to accomplish the goals of the OBMP. The Parties developed the Peace II Agreement, approved by the Court on December 21, 2007, which redefined the future programs and actions required to implement the OBMP by introducing Re-operation[1] to achieve Hydraulic Control[2] of the Chino Basin and maintain Safe Yield. The IEUA Board certified a supplemental environmental impact report (SEIR) for the Peace II Agreement in 2010.

In 2016, Watermaster identified the need to update the storage management plan in the OBMP Implementation Plan because the total amount of water in managed storage accounts was projected to exceed the Safe Storage Capacity (SSC) limit of 500,000 af defined in the 2000 OBMP. In 2017, the IEUA adopted an Addendum to the OBMP PEIR to provide a "temporary increase in the Safe Storage Capacity from 500,000 af to 600,000 af for the period of July 1, 2017 through June 30, 2021 […] until a comprehensive re-evaluation of the Safe Storage Capacity value/concept can be completed before June 30, 2021."[3]

The 2000 OBMP contains a set of management programs (the Program Elements, PEs) that improve the reliability and long-term sustainability of the Chino Basin and the water supply reliability of the Judgment Parties. The framework for developing the OBMP were all based on 1998-1999 conditions and valid planning assumptions at that time. As of 2020, many of the projects and management programs envisioned in the 2000 OBMP have been and continue to be implemented; though some have not. The understanding of the hydrology and hydrogeology of the Chino Basin has improved since 2000, and new water-management issues have been identified. The strategic drivers and trends that shaped the goals and implementation actions of the OBMP in the late 1990s have since changed. And, there are several drivers and trends in today's water management space that may challenge the ability of the Parties to protect their collective interests in the Chino Basin and their water supply reliability. These are depicted in Exhibit 3.

The OBMPU's scope is, of necessity, expansive, as it covers the nine (9) Program Elements (PEs) that make up the original OBMP, and which were analyzed in a 2000 Program Environmental Impact Report (2000 PEIR). The OBMPU is intended to address possible program activities and projects at a programmatic level over the next 30 years, with some site-specific detail where near-term future locations of facilities are known.

Since the IEUA has jurisdiction throughout most of the Chino Basin, it has agreed to serve as the Lead Agency for purposes of complying with the CEQA. The CBWM and parties/stakeholders of the OBMPU and regulatory agencies that will function as CEQA Responsible Agencies will have the option of relying upon this CEQA document for any future actions they take in support of the proposed program or an individual project described in this environmental document.

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[1] Re-operation is the controlled overdraft of the basin by the managed withdrawal of groundwater pumping for the Chino Basin Desalters and the potential increase in the cumulative un-replenished pumping from the 200,000 acre-feet authorized by paragraph 3 of the Engineering Appendix Exhibit I to the Judgment, to 600,000 acre-feet for the express purpose of securing and maintaining Hydraulic Control as a component of the Physical Solution.
[2] Hydraulic Control is the elimination of groundwater discharge from the Chino-North Groundwater Management Zone to the Santa Ana River or its reduction to less than 1,000 afy.
[3] Tom Dodson & Associates. (2017). *Addendum No. 1 to the Optimum Basin Management Program Project*. Page 2.

Watermaster has prepared the Optimum Basin Management Program Update Draft Subsequent Environmental Impact Report (DSEIR) that evaluates the potential environmental impacts that would result from constructing and implementing the proposed Project.

This chapter of the DSEIR provides the detailed information used to forecast the type and significance of potential environmental impacts that implementation of the proposed project and related actions could cause if the project is implemented as described in Chapter 3, the Project Description.

In the following subchapters, as discussed in Chapter 2 of this document, of the 21 environmental topics identified in Appendix G of the CEQA Guidelines, only eight topics will be evaluated in this focused DSEIR: Air Quality, Biological Resources, Cultural Resources, Energy, Greenhouse Gas, Hydrology and Water Quality, Tribal Cultural Resources, and Utilities and Service Systems. The environmental impact analysis section for each environmental topic is arranged in the following manner:

a. An introduction that summarizes the specific issues of concern for each subchapter, as identified in the NOP scoping process;
b. A summary of the current or existing environmental setting for each physical resource or human infrastructure system is presented as the baseline from which impacts will be forecast;
c. Based on stated assumptions and identified criteria or thresholds of significance, the potential direct and indirect impacts of the proposed Project are forecast and the significance of impacts is assessed without applying any mitigation; recommended measures that can be implemented to substantially lessen potential environmental impacts are identified, and their effectiveness in reducing impacts to non-significant levels is described; and, potential cumulative environmental impacts are assessed under each environmental topic, where applicable; and,
d. Significant and unavoidable environmental impacts and any significant impacts that may be caused by implementing mitigation measures are addressed.

To provide the reviewer with a criterion or set of criteria with which to evaluate the significance of potential environmental impacts, this document provides issue specific criteria, i.e. thresholds of significance, for each topic considered in this Draft SEIR. These criteria are either standard thresholds, established by law or policy (such as ambient air quality standards or thresholds of significance established by the South Coast Air Quality Management District) or project-specific evaluation thresholds used specifically for this project. After comparing the forecasted physical changes in the environment that may be caused by implementing the proposed project with the issue specific significance threshold criterion or criteria, a conclusion is reached on whether the proposed Project has the potential to cause a significant environmental impact for the issue being evaluated.

Where appropriate and feasible, measures to reduce potential significant environmental impacts are identified and described in this section of the Focused DSEIR. Over the past several years, mitigation has evolved in scope and complexity. As environmental issues are addressed in a progressive and adaptive manner, previous measures developed to mitigate project specific impacts are eventually integrated into local, regional, state and federal statutes, rules and regulations, such as the Uniform Building Code or Water Quality Management Plans. Mitigation measures that are incorporated into statutes or rules and regulations become mandatory requirements (not discretionary) and they no longer need to be identified as discretionary mitigation measures applicable to the Project, although they are often referenced to demonstrate that identified environmental impacts can and will be mitigated.

The text in the following subchapters summarizes all of the various measures anticipated to be incorporated into the project to reduce potential significant environmental effects, either to the extent feasible or to a level of less than significant. After determining the degree of mitigation that can be achieved by the proposed measures and after identifying any potential adverse impacts that the mitigation measures may cause, a conclusion is provided regarding the remaining level of impact, such as less than significant and/or unavoidable significant adverse impact for each environmental topic, if any.

To the extent feasible, this document utilizes conservative (worst case) assumptions in making impact forecasts based on the assumption that, if impacts cannot be absolutely quantified, the impact forecasts should over-predict consequences rather than under-predict them. The many technical studies that were prepared for this document are incorporated into this chapter by summarizing the technical information to ensure technical accuracy. The Optimum Basin Management Program Update Notice of Preparation (NOP) was distributed to the public and through the State Clearinghouse on February 10, 2020. The publication of the NOP established the date for all baseline information contained in this document. The various technical studies prepared in support of this Draft SEIR were all compiled and completed concurrent with or after the baseline date of March 10, 2020 and all analysis in the DSEIR was compiled subsequent to this date.

These technical studies themselves are compiled in a separate volume of the DSEIR (Volume 2) which will be distributed in electronic form and made available to all parties upon request. The information used and analyses performed to make impact forecasts are provided in depth in this document to allow reviewers to follow a chain of logic for each impact conclusion and to allow the reader to reach independent conclusions regarding the significance of the potential impacts described in the following subchapters.

4.2 AIR QUALITY

4.2.1 Introduction

The *2020 Optimum Basin Management Program Update Air Quality Impact Analysis Chino Basin Watermaster* dated March 6, 2020 was prepared by Urban Crossroads to evaluate the potential impacts to air quality associated with construction and operation of the facilities proposed as part of the Optimum Basin Management Program Update (OBMPU) Draft Subsequent EIR (DSEIR). A copy of the AQIA is provided as Appendix 2 of Volume 2 of this DSEIR. Much of the information provided in the following sections is abstracted directly from this technical report with minor edits.

The Inland Empire Utilities Agency (IEUA), in coordination with the Chino Basin Watermaster (Watermaster or CBWM) has prepared a DSEIR to evaluate the potential significant environmental impacts that may result from implementing the OBMPU. The OBMPU is anticipated to be implemented over a horizon of about 30 years. The implementation of the facilities proposed as part of the OBMPU consists of construction and operation of the various facilities supporting the 9 Program Elements that make up the OBMPU. These potential facilities are separated into four project categories: (1) Project Category 1: Well Development and Monitoring Devices; (2) Project Category 2: Conveyance Facilities and Ancillary Facilities; (3) Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands; and, (4) Desalters and Water Treatment Facilities.

A detailed description of the construction and operational activities associated with implementation of the OBMPU is included in the Project Description, Chapter 3 of this DSEIR.

This document is a focused DSEIR for the above-described project, but all of the standard issues related to air quality, identified in Appendix G of the State CEQA Guidelines, are evaluated. The issues pertaining to Air Quality will be discussed below as set forth in the following framework:

4.2.1 Introduction
4.2.2 Air Quality Setting
4.2.3 Regulatory Setting
4.2.4 Thresholds of Significance
4.2.5 Environmental Consequences
4.2.6 Avoidance, Minimization and Mitigation Measures
4.2.7 Cumulative Impacts
4.2.8 Unavoidable Significant Adverse Impacts

No comments were received at the scoping meeting or during the NOP Comment Period that pertain to Air Quality.

All references pertaining to this Subchapter are located within the AQIA is provided as Appendix 2 of Volume 2 of this DSEIR.

4.2.2 Air Quality Setting

4.2.2.1 South Coast Air Basin

The Project site is located in the South Coast Air Basin (SCAB) within the jurisdiction of South Coast Air Quality Management District (SCAQMD). The SCAQMD was created by the 1977 Lewis-Presley Air Quality Management Act, which merged four county air pollution control bodies into one regional district. Under the Act, the SCAQMD is responsible for bringing air quality in areas under its jurisdiction into conformity with federal and state air quality standards. As previously stated, the Project site is located within the SCAB, a 6,745-square mile subregion of the SCAQMD, which includes portions of Los Angeles, Riverside, and San Bernardino Counties, and all of Orange County.

The SCAB is bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The Los Angeles County portion of the Mojave Desert Air Basin is bounded by the San Gabriel Mountains to the south and west, the Los Angeles / Kern County border to the north, and the Los Angeles / San Bernardino County border to the east. The Riverside County portion of the Salton Sea Air Basin is bounded by the San Jacinto Mountains in the west and spans eastward up to the Palo Verde Valley.

4.2.2.2 Regional Climate and Wind Patterns

The regional climate has a substantial influence on air quality in the SCAB. In addition, the temperature, wind, humidity, precipitation, and amount of sunshine influence the air quality.

The annual average temperatures throughout the SCAB vary from the low to middle 60s degrees Fahrenheit (°F). Due to a decreased marine influence, the eastern portion of the SCAB shows greater variability in average annual minimum and maximum temperatures. January is the coldest month throughout the SCAB, with average minimum temperatures of 47°F in downtown Los Angeles and 36°F in San Bernardino. All portions of the SCAB have recorded maximum temperatures above 100°F.

Although the climate of the SCAB can be characterized as semi-arid, the air near the land surface is quite moist on most days because of the presence of a marine layer. This shallow layer of sea air is an important modifier of SCAB climate. Humidity restricts visibility in the SCAB, and the conversion of sulfur dioxide (SO2) to sulfates (SO4) is heightened in air with high relative humidity. The marine layer provides an environment for that conversion process, especially during the spring and summer months. The annual average relative humidity within the SCAB is 71% along the coast and 59% inland. Since the ocean effect is dominant, periods of heavy early morning fog are frequent and low stratus clouds are a characteristic feature. These effects decrease with distance from the coast.

More than 90% of the SCAB's rainfall occurs from November through April. The annual average rainfall varies from approximately nine inches in Riverside to fourteen inches in downtown Los Angeles. Monthly and yearly rainfall totals are extremely variable. Summer rainfall usually consists of widely scattered thunderstorms near the coast and slightly heavier shower activity in the eastern portion of the SCAB with frequency being higher near the coast.

Due to its generally clear weather, about three-quarters of available sunshine is received in the SCAB. The remaining one-quarter is absorbed by clouds. The ultraviolet portion of this abundant radiation is a key factor in photochemical reactions. On the shortest day of the year there are approximately 10 hours of possible sunshine, and on the longest day of the year there are approximately 14½ hours of possible sunshine.

The importance of wind to air pollution is considerable. The direction and speed of the wind determines the horizontal dispersion and transport of the air pollutants. During the late autumn to early spring rainy season, the SCAB is subjected to wind flows associated with the traveling storms moving through the region from the northwest. This period also brings five to ten periods of strong, dry offshore winds, locally termed “Santa Anas” each year. During the dry season, which coincides with the months of maximum photochemical smog concentrations, the wind flow is bimodal, typified by a daytime onshore sea breeze and a nighttime offshore drainage wind. Summer wind flows are created by the pressure differences between the relatively cold ocean and the unevenly heated and cooled land surfaces that modify the general northwesterly wind circulation over southern California. Nighttime drainage begins with the radiational cooling of the mountain slopes. Heavy, cool air descends the slopes and flows through the mountain passes and canyons as it follows the lowering terrain toward the ocean. Another characteristic wind regime in the SCAB is the “Catalina Eddy,” a low level cyclonic (counterclockwise) flow centered over Santa Catalina Island which results in an offshore flow to the southwest. On most spring and summer days, some indication of an eddy is apparent in coastal sections.

In the SCAB, there are two distinct temperature inversion structures that control vertical mixing of air pollution. During the summer, warm high-pressure descending (subsiding) air is undercut by a shallow layer of cool marine air. The boundary between these two layers of air is a persistent marine subsidence/inversion. This boundary prevents vertical mixing which effectively acts as an impervious lid to pollutants over the entire SCAB. The mixing height for the inversion structure is normally situated 1,000 to 1,500 feet above mean sea level.

A second inversion-type forms in conjunction with the drainage of cool air off the surrounding mountains at night followed by the seaward drift of this pool of cool air. The top of this layer forms a sharp boundary with the warmer air aloft and creates nocturnal radiation inversions. These inversions occur primarily in the winter, when nights are longer and onshore flow is weakest. They are typically only a few hundred feet above mean sea level. These inversions effectively trap pollutants, such as nitrogen oxides (NOX) and carbon monoxide (CO) from vehicles, as the pool of cool air drifts seaward. Winter is therefore a period of high levels of primary pollutants along the coastline.

The distinctive climate of the Project area and the SCAB is determined by its terrain and geographical location. The SCAB is located in a coastal plain with connecting broad valleys and low hills, bounded by the Pacific Ocean in the southwest quadrant with high mountains forming the remainder of the perimeter.

Wind patterns across the south coastal region are characterized by westerly and southwesterly onshore winds during the day and easterly or northeasterly breezes at night. Winds are characteristically light although the speed is somewhat greater during the dry summer months than during the rainy winter season.

4.2.2.3 Criteria Pollutants

Criteria pollutants are pollutants that are regulated through the development of human health based and/or environmentally based criteria for setting permissible exposure levels. Criteria pollutants, their typical sources, and health effects are identified below:

Table 4.2-1
CRITERIA POLLUTANTS

Criteria Pollutant	Description	Sources	Health Effects
CO	CO is a colorless, odorless gas produced by the incomplete combustion of carbon-containing fuels, such as gasoline or wood. CO concentrations tend to be the highest during the winter morning, when little to no wind and surface-based inversions trap the pollutant at ground levels. Because CO is emitted directly from internal combustion engines, unlike ozone (O_3), motor vehicles operating at slow speeds are the primary source of CO in the SCAB. The highest ambient CO concentrations are generally found near congested transportation corridors and intersections.	Any source that burns fuel such as automobiles, trucks, heavy construction equipment, farming equipment and residential heating.	Individuals with a deficient blood supply to the heart are the most susceptible to the adverse effects of CO exposure. The effects observed include earlier onset of chest pain with exercise, and electrocardiograph changes indicative of decreased oxygen (O_2) supply to the heart. Inhaled CO has no direct toxic effect on the lungs but exerts its effect on tissues by interfering with O_2 transport and competing with O_2 to combine with hemoglobin present in the blood to form carboxyhemoglobin (COHb). Hence, conditions with an increased demand for O_2 supply can be adversely affected by exposure to CO. Individuals most at risk include fetuses, patients with diseases involving heart and blood vessels, and patients with chronic hypoxemia (O_2 deficiency) as seen at high altitudes.
SO_2	SO_2 is a colorless, extremely irritating gas or liquid. It enters the atmosphere as a pollutant mainly as a result of burning high sulfur-content fuel oils and coal and from chemical processes occurring at chemical plants and refineries. When SO_2 oxidizes in the atmosphere, it forms SO_4. Collectively, these pollutants are referred to as sulfur oxides (SO_X).	Coal or oil burning power plants and industries, refineries, diesel engines	A few minutes of exposure to low levels of SO_2 can result in airway constriction in some asthmatics, all of whom are sensitive to its effects. In asthmatics, increase in resistance to air flow, as well as reduction in breathing capacity leading to severe breathing difficulties, are observed after acute exposure to SO_2. In contrast, healthy individuals do not exhibit similar acute responses even after exposure to higher concentrations of SO_2. Animal studies suggest that despite SO_2 being a respiratory irritant, it does not cause substantial lung injury at ambient concentrations. However, very high levels of exposure can cause lung edema (fluid accumulation), lung tissue damage, and sloughing off of cells lining the respiratory tract. Some population-based studies indicate that the mortality and morbidity effects associated with fine particles show a similar association with ambient SO_2 levels. In these studies, efforts to

Criteria Pollutant	Description	Sources	Health Effects
			separate the effects of SO_2 from those of fine particles have not been successful. It is not clear whether the two pollutants act synergistically, or one pollutant alone is the predominant factor.
NO_X	NO_X consist of nitric oxide (NO), nitrogen dioxide (NO_2) and nitrous oxide (N_2O) and are formed when nitrogen (N_2) combines with O_2. Their lifespan in the atmosphere ranges from one to seven days for NO and N_2O, to 170 years for nitrous oxide. NO_X is typically created during combustion processes and are major contributors to smog formation and acid deposition. NO_2 is a criteria air pollutant and may result in numerous adverse health effects; it absorbs blue light, resulting in a brownish-red cast to the atmosphere and reduced visibility. Of the seven types of nitrogen oxide compounds, NO_2 is the most abundant in the atmosphere. As ambient concentrations of NO_2 are related to traffic density, commuters in heavy traffic may be exposed to higher concentrations of NO_2 than those indicated by regional monitoring station.	Any source that burns fuel such as automobiles, trucks, heavy construction equipment, farming equipment and residential heating.	Population-based studies suggest that an increase in acute respiratory illness, including infections and respiratory symptoms in children (not infants), is associated with long-term exposure to NO_2 at levels found in homes with gas stoves, which are higher than ambient levels found in Southern California. Increase in resistance to air flow and airway contraction is observed after short-term exposure to NO_2 in healthy subjects. Larger decreases in lung functions are observed in individuals with asthma or chronic obstructive pulmonary disease (e.g., chronic bronchitis, emphysema) than in healthy individuals, indicating a greater susceptibility of these sub-groups. In animals, exposure to levels of NO_2 considerably higher than ambient concentrations result in increased susceptibility to infections, possibly due to the observed changes in cells involved in maintaining immune functions. The severity of lung tissue damage associated with high levels of O_3 exposure increases when animals are exposed to a combination of O_3 and NO_2.
O_3	O_3 is a highly reactive and unstable gas that is formed when VOCs and NO_X, both byproducts of internal combustion engine exhaust, undergo slow photochemical reactions in the presence of sunlight. O_3 concentrations are generally highest during the summer months when direct sunlight, light wind, and warm temperature conditions are favorable to the formation of this pollutant.	Formed when reactive organic gases (ROG) and NO_X react in the presence of sunlight. ROG sources include any source that burns fuels, (e.g., gasoline, natural gas, wood, oil) solvents, petroleum processing and storage and pesticides.	Individuals exercising outdoors, children, and people with preexisting lung disease, such as asthma and chronic pulmonary lung disease, are considered to be the most susceptible sub-groups for O_3 effects. Short-term exposure (lasting for a few hours) to O_3 at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes. Elevated O_3 levels are

Criteria Pollutant	Description	Sources	Health Effects
			associated with increased school absences. In recent years, a correlation between elevated ambient O_3 levels and increases in daily hospital admission rates, as well as mortality, has also been reported. An increased risk for asthma has been found in children who participate in multiple outdoor sports and live in communities with high O_3 levels. O_3 exposure under exercising conditions is known to increase the severity of the responses described above. Animal studies suggest that exposure to a combination of pollutants that includes O_3 may be more toxic than exposure to O_3 alone. Although lung volume and resistance changes observed after a single exposure diminish with repeated exposures, biochemical and cellular changes appear to persist, which can lead to subsequent lung structural changes.
Particulate Matter	PM_{10}: A major air pollutant consisting of tiny solid or liquid particles of soot, dust, smoke, fumes, and aerosols. Particulate matter pollution is a major cause of reduce visibility (haze) which is caused by the scattering of light and consequently the significant reduction air clarity. The size of the particles (10 microns or smaller, about 0.0004 inches or less) allows them to easily enter the lungs where they may be deposited, resulting in adverse health effects. Additionally, it should be noted that PM_{10} is considered a criteria air pollutant. $PM_{2.5}$: A similar air pollutant to PM_{10} consisting of tiny solid or liquid particles which are 2.5 microns or smaller (which is often referred to as fine particles). These particles are formed in the atmosphere from primary gaseous emissions that include SO_4 formed from SO_2 release from power plants and industrial facilities and nitrates that are formed from NO_X release from power plants, automobiles and other types of combustion sources. The chemical composition of fine particles highly depends on location, time of year, and weather conditions. $PM_{2.5}$ is a criteria air pollutant.	Sources of PM_{10} include road dust, windblown dust and construction. Also formed from other pollutants (acid rain, NO_X, SO_X, organics). Incomplete combustion of any fuel. $PM_{2.5}$ comes from fuel combustion in motor vehicles, equipment and industrial sources, residential and agricultural burning. Also formed from reaction of other pollutants (acid rain, NO_X, SO_X, organics).	A consistent correlation between elevated ambient fine particulate matter (PM_{10} and $PM_{2.5}$) levels and an increase in mortality rates, respiratory infections, number and severity of asthma attacks and the number of hospital admissions has been observed in different parts of the United States and various areas around the world. In recent years, some studies have reported an association between long-term exposure to air pollution dominated by fine particles and increased mortality, reduction in lifespan, and an increased mortality from lung cancer. Daily fluctuations in $PM_{2.5}$ concentration levels have also been related to hospital admissions for acute respiratory conditions in children, to school and kindergarten absences, to a decrease in respiratory lung volumes in normal children, and to increased medication use in children and adults with asthma. Recent studies show lung function growth in children is

Criteria Pollutant	Description	Sources	Health Effects
			reduced with long term exposure to particulate matter. The elderly, people with pre-existing respiratory or cardiovascular disease, and children appear to be more susceptible to the effects of high levels of PM_{10} and $PM_{2.5}$.
VOC	VOCs are hydrocarbon compounds (any compound containing various combinations of hydrogen and carbon atoms) that exist in the ambient air. VOCs contribute to the formation of smog through atmospheric photochemical reactions and/or may be toxic. Compounds of carbon (also known as organic compounds) have different levels of reactivity; that is, they do not react at the same speed or do not form O_3 to the same extent when exposed to photochemical processes. VOCs often have an odor, and some examples include gasoline, alcohol, and the solvents used in paints. Exceptions to the VOC designation include CO, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate. VOCs are a criteria pollutant since they are a precursor to O_3, which is a criteria pollutant. The terms VOC and ROG (see below) interchangeably.	Organic chemicals are widely used as ingredients in household products. Paints, varnishes and wax all contain organic solvents, as do many cleaning, disinfecting, cosmetic, degreasing and hobby products. Fuels are made up of organic chemicals. All of these products can release organic compounds while you are using them, and, to some degree, when they are stored.	Breathing VOCs can irritate the eyes, nose and throat, can cause difficulty breathing and nausea, and can damage the central nervous system as well as other organs. Some VOCs can cause cancer. Not all VOCs have all these health effects, though many have several.
ROG	Similar to VOC, ROGs are also precursors in forming O_3 and consist of compounds containing methane, ethane, propane, butane, and longer chain hydrocarbons, which are typically the result of some type of combustion/decomposition process. Smog is formed when ROG and NO_X react in the presence of sunlight. ROGs are a criteria pollutant since they are a precursor to O_3, which is a criteria pollutant. The terms ROG and VOC (see previous) interchangeably.	Sources similar to VOCs.	Health effects similar to VOCs.
Lead (Pb)	Pb is a heavy metal that is highly persistent in the environment and is considered a criteria pollutant. In the past, the primary source of Pb in the air was emissions from vehicles burning leaded gasoline. The major sources of Pb emissions are ore and metals processing, particularly Pb smelters, and piston-engine aircraft operating on leaded aviation gasoline. Other stationary sources include waste incinerators, utilities, and lead-acid battery manufacturers. It should be noted that the Project does not include operational activities such as metal	Metal smelters, resource recovery, leaded gasoline, deterioration of Pb paint.	Fetuses, infants, and children are more sensitive than others to the adverse effects of Pb exposure. Exposure to low levels of Pb can adversely affect the development and function of the central nervous system, leading to learning disorders, distractibility, inability to follow simple commands, and lower intelligence quotient. In adults, increased Pb levels are associated with increased blood pressure.

Criteria Pollutant	Description	Sources	Health Effects
	processing or Pb acid battery manufacturing. As such, the Project is not anticipated to generate a quantifiable amount of Pb emissions.		Pb poisoning can cause anemia, lethargy, seizures, and death; although it appears that there are no direct effects of Pb on the respiratory system. Pb can be stored in the bone from early age environmental exposure, and elevated blood Pb levels can occur due to breakdown of bone tissue during pregnancy, hyperthyroidism (increased secretion of hormones from the thyroid gland) and osteoporosis (breakdown of bony tissue). Fetuses and breast-fed babies can be exposed to higher levels of Pb because of previous environmental Pb exposure of their mothers.
Odor	Odor means the perception experienced by a person when one or more chemical substances in the air come into contact with the human olfactory nerve.	Odors can come from many sources including animals, human activities, industry, natures, and vehicles.	Offensive odors can potentially affect human health in several ways. First, odorant compounds can irritate the eye, nose, and throat, which can reduce respiratory volume. Second, studies have shown that the VOCs that cause odors can stimulate sensory nerves to cause neurochemical changes that might influence health, for instance, by compromising the immune system. Finally, unpleasant odors can trigger memories or attitudes linked to unpleasant odors, causing cognitive and emotional effects such as stress.

4.2.2.4 Existing Air Quality

Existing air quality is measured at established SCAQMD air quality monitoring stations. Monitored air quality is evaluated in the context of ambient air quality standards. These standards are the levels of air quality that are considered safe, with an adequate margin of safety, to protect the public health and welfare. National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) currently in effect are shown in Table 4.2-2.

The determination of whether a region's air quality is healthful or unhealthful is determined by comparing contaminant levels in ambient air samples to the state and federal standards. At the time of this AQIA, the most recent state and federal standards were updated by CARB on May ,4 2016 and are presented in Table 4.2-2. The air quality in a region is considered to be in attainment by the state if the measured ambient air pollutant levels for O3, CO (except 8-hour Lake Tahoe), SO2 (1 and 24 hour), NO2, PM10, and PM2.5 are not to be exceeded. All others are not to be equaled or exceeded. It should be noted that the three-year period is presented for informational purposes and is not the basis for how the State assigns attainment status. Attainment status for a pollutant means that the SCAQMD meets the standards set by the EPA or the California EPA (CalEPA). Conversely, nonattainment means that an area has monitored air quality that does not meet the NAAQS or CAAQS standards. In order to improve air quality in nonattainment areas, a State Implementation Plan (SIP) is drafted by CARB. The SIP outlines the measures that the state will take to improve air quality. Once nonattainment areas meet the standards and additional redesignation requirements, the EPA will designate the area as a maintenance area.

Table 4.2-2
AMBIENT AIR QUALITY STANDARDS

Pollutant	Average Time	California Standards [1]		National Standards [2]		
		Concentration [3]	Method [4]	Primary [3,5]	Secondary [3,6]	Method [7]
Ozone (O_3)[8]	1 Hour	0.09 ppm (180 $\mu g/m^3$)	Ultraviolet Photometry	–	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 $\mu g/m^3$)		0.070 ppm (137 $\mu g/m^3$)		
Respirable Particulate Matter (PM10)[9]	24 Hour	50 $\mu g/m^3$	Gravimetric or Beta Attenuation	150 $\mu g/m^3$	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 $\mu g/m^3$		–		
Fine Particulate Matter (PM2.5)[9]	24 Hour	–	–	35 $\mu g/m^3$	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 $\mu g/m^3$	Gravimetric or Beta Attenuation	12.0 $\mu g/m^3$	15.0 $\mu g/m^3$	
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m^3)	–	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9 ppm (10 mg/m^3)		9 ppm (10 mg/m^3)	–	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		–	–	
Nitrogen Dioxide (NO_2)[10]	1 Hour	0.18 ppm (339 $\mu g/m^3$)	Gas Phase Chemiluminescence	100 ppb (188 $\mu g/m^3$)	–	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 $\mu g/m^3$)		0.053 ppm (100 $\mu g/m^3$)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[11]	1 Hour	0.25 ppm (655 $\mu g/m^3$)	Ultraviolet Fluorescence	75 ppb (196 $\mu g/m^3$)	–	Ultraviolet Flourescense; Spectrophotometry (Paraosaniline Method)
	3 Hour	–		–	0.5 ppm (1300 $\mu g/m^3$)	
	24 Hour	0.04 ppm (105 $\mu g/m^3$)		0.14 ppm (for certain areas)[11]	–	
	Annual Arithmetic Mean	–		0.030 ppm (for certain areas)[11]	–	
Lead 8[12,13]	30-Day Average	1.5 $\mu g/m^3$	Atomic Absorption	–	–	–
	Calendar Quarter	–		1.5 $\mu g/m^3$ (for certain areas)[12]	Same as Primary Standard	High Volume Sampler and Atomic Absorption
	Rolling 3-Month Avg	–		0.15 $\mu g/m^3$		
Visibility Reducing Particles[14]	8 Hour	See footnote 14	Beta Attenuation and Transmittance through Filter Tape	**No Federal Standards**		
Sulfates	24 Hour	25 $\mu g/m^3$	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 $\mu g/m^3$)	Ultraviolet Fluorescence			
Vinyl Chloride[12]	24 Hour	0.01 ppm (26 $\mu g/m^3$)	Gas Chromatography			

Footnotes

1 California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, suspended particulate matter – PM10, PM2.5, and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

2 National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest eight hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24-hour standard is attained when the expected number of days per calendar year, with a 24-hour average concentration above 150 μg/m^3, is equal to or less than one. For PM2.5, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact U.S. EPA for further clarification and current federal policies.

3 Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25̊C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25̊C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

4 Any equivalent procedure which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.

5 National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

6 National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

7 Reference method as described by the EPA. An “equivalent method” of measurement may be used but must have a “consistent relationship to the reference method” and must be approved by the EPA.

8 On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

9 On December 14, 2012, the national PM2.5 primary standard was lowered from 15 μg/m^3 to 12.0 μg/m^3. The existing national 24-hour PM2.5 standards (primarily and secondary) were retained at 35 μg/m^3, as was the annual secondary standard of 15 μg/m^3. The existing 24-hour PM10 standards (primarily and secondary) of 150 μg/m^3 also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

10 To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

11 On June 2, 2010, a new 1-hour SO2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

12 The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

13 The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 j.tg/m^3 as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

14 In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

4.2.2.5 Regional Air Quality

Air pollution contributes to a wide variety of adverse health effects. The EPA has established NAAQS for six of the most common air pollutants: CO, Pb, O3, particulate matter (PM10 and PM2.5), NO2, and SO2 which are known as criteria pollutants. The SCAQMD monitors levels of various criteria pollutants at 37 permanent monitoring stations and 5 single-pollutant source Pb air monitoring sites throughout the air district. On February 21, 2019, CARB posted the 2018 amendments to the state and national area designations. See Table 4.2-3 for attainment designations of the SCAB.

Table 4.2-3
ATTAINMENT STATUS OF CRITERIA POLLUTANTS IN THE SCAB

Criteria Pollutant	State Designation	Federal Designation
O_3 – 1-hour standard	Nonattainment	--
O_3 – 8-hour standard	Nonattainment	Nonattainment
PM_{10}	Nonattainment	Attainment
$PM_{2.5}$	Nonattainment	Nonattainment
CO	Attainment	Unclassifiable/Attainment
NO_2	Attainment	Unclassifiable/Attainment
SO_2	Unclassifiable/Attainment	Unclassifiable/Attainment
Pb[4]	Attainment	Unclassifiable/Attainment

Note: See Appendix 2.1 within Appendix 2, Volume 2 to this DSEIR for a detailed map of State/National Area Designations within the SCAB
"-" = The national 1-hour O_3 standard was revoked effective June 15, 2005

4.2.2.6 Local Air Quality

The Project site is located within multiple Source Receptor Areas (SRA) (11). The SRAs include the Pomona/Walnut Valley (SRA 10), Corona/Norco Area (SRA 22), Metropolitan Riverside County 1 (SRA 23), Northwest San Bernardino Valley (SRA 32), I-10 Near Road (SRA 33), CA-60 Near Road (SRA 33), and the Central San Bernardino Valley 1 (SRA 34).

The most recent three (3) years of data available are shown on Table 4.2-4 and identifies the number of days ambient air quality standards were exceeded for the study area, which is considered to be representative of the local air quality at the Project site. Data for O3, CO, NO2, PM10, and PM2.5 for 2016 through 2018 was obtained from the SCAQMD Air Quality Data Tables. Additionally, data for SO2 has been omitted as attainment is regularly met in the SCAB and few monitoring stations measure SO2 concentrations.

[4] The Federal nonattainment designation for lead is only applicable towards the Los Angeles County portion of the SCAB.

Table 4.2-4
PROJECT AREA AIR QUALITY MONITORING SUMMARY 2016-2018

Pollutant	Standard	Year		
		2016	2017	2018
O_3				
Maximum Federal 1-Hour Concentration (ppm)		0.156	0.150	0.133
Maximum Federal 8-Hour Concentration (ppm)		0.116	0.127	0.111
Number of Days Exceeding State 1-Hour Standard	> 0.09 ppm	53	66	25
Number of Days Exceeding Federal/State 8-Hour Standard	> 0.070 ppm	89	87	52
CO				
Maximum Federal 1-Hour Concentration	> 35 ppm	1.7	2.0	2.2
Maximum Federal 8-Hour Concentration	> 20 ppm	1.3	1.6	2.0
NO_2				
Maximum Federal 1-Hour Concentration	> 0.100 ppm	0.093	0.093	0.068
Annual Federal Standard Design Value		0.029	0.032	0.019
PM_{10}				
Maximum Federal 24-Hour Concentration (µg/m^3)	> 150 µg/m^3	94	138	129
Annual Federal Arithmetic Mean (µg/m^3)		38.1	41.6	30.2
Number of Days Exceeding Federal 24-Hour Standard	> 150 µg/m^3	0	0	0
Number of Days Exceeding State 24-Hour Standard	> 50 µg/m^3	15	103	25
$PM_{2.5}$				
Maximum Federal 24-Hour Concentration (µg/m^3)	> 35 µg/m^3	44.14	50.30	50.70
Annual Federal Arithmetic Mean (µg/m^3)	> 12 µg/m^3	14.73	12.18	12.41
Number of Days Exceeding Federal 24-Hour Standard	> 35 µg/m^3	6	6	2

ppm = Parts Per Million
Source: Data for O3, CO, NO2, PM10, and PM2.5 was obtained from SCAQMD Air Quality Data Tables

4.2.3 Regulatory Setting

4.2.3.1 Federal Regulations

The EPA is responsible for setting and enforcing the NAAQS for O3, CO, NOX, SO2, PM10, and Pb. The EPA has jurisdiction over emissions sources that are under the authority of the federal government including aircraft, locomotives, and emissions sources outside state waters (Outer Continental Shelf). The EPA also establishes emission standards for vehicles sold in states other than California. Automobiles sold in California must meet the stricter emission requirements of the CARB.

The Federal Clean Air Act (CAA) was first enacted in 1955 and has been amended numerous times in subsequent years (1963, 1965, 1967, 1970, 1977, and 1990). The CAA establishes the federal air quality standards, the NAAQS, and specifies future dates for achieving compliance. The CAA also mandates that states submit and implement SIPs for local areas not meeting these standards. These plans must include pollution control measures that demonstrate how the standards will be met.

The 1990 amendments to the CAA that identify specific emission reduction goals for areas not meeting the NAAQS require a demonstration of reasonable further progress toward attainment and incorporate additional sanctions for failure to attain or to meet interim milestones. The sections of the CAA most directly applicable to the development of the Project site include Title I (Non-Attainment Provisions) and Title II (Mobile Source Provisions). Title I provisions were established with the goal of attaining the NAAQS for the following criteria pollutants O3, NO2, SO2, PM10, CO, PM2.5, and Pb. The NAAQS were amended in July 1997 to include an additional standard for O3 and to adopt a NAAQS for PM2.5. Table 4.2-3 (previously presented) provides the NAAQS within the SCAB.

Mobile source emissions are regulated in accordance with Title II provisions. These provisions require the use of cleaner burning gasoline and other cleaner burning fuels such as methanol and natural gas. Automobile manufacturers are also required to reduce tailpipe emissions of hydrocarbons and NOX. NOX is a collective term that includes all forms of NOX which are emitted as byproducts of the combustion process.

4.2.3.2 California Regulations

4.2.3.2.1 CARB

The CARB, which became part of the CalEPA in 1991, is responsible for ensuring implementation of the California Clean Air Act (AB 2595), responding to the federal CAA, and for regulating emissions from consumer products and motor vehicles. AB 2595 mandates achievement of the maximum degree of emissions reductions possible from vehicular and other mobile sources in order to attain the state ambient air quality standards by the earliest practical date. The CARB established the CAAQS for all pollutants for which the federal government has NAAQS and, in addition, establishes standards for SO_4, visibility, hydrogen sulfide (H_2S), and vinyl chloride (C_2H_3Cl). However, at this time, H_2S and C_2H_3Cl are not measured at any monitoring stations in the SCAB because they are not considered to be a regional air quality problem. Generally, the CAAQS are more stringent than the NAAQS.

Local air quality management districts, such as the SCAQMD, regulate air emissions from stationary sources such as commercial and industrial facilities. All air pollution control districts have been formally designated as attainment or non-attainment for each CAAQS.

Serious non-attainment areas are required to prepare Air Quality Management Plans (AQMP) that include specified emission reduction strategies in an effort to meet clean air goals. These plans are required to include:

- Application of Best Available Retrofit Control Technology to existing sources;
- Developing control programs for area sources (e.g., architectural coatings and solvents) and indirect sources (e.g. motor vehicle use generated by residential and commercial development);
- A District permitting system designed to allow no net increase in emissions from any new or modified permitted sources of emissions;
- Implementing reasonably available transportation control measures and assuring a substantial reduction in growth rate of vehicle trips and miles traveled;
- Significant use of low emissions vehicles by fleet operators;
- Sufficient control strategies to achieve a 5% or more annual reduction in emissions or 15% or more in a period of three years for ROGs, NO_X, CO and PM_{10}. However, air basins may use alternative emission reduction strategy that achieves a reduction of less than 5% per year under certain circumstances.

4.2.3.2.2 Title 24 Energy Efficiency Standards and California Green Building Standards

California Code of Regulations (CCR) Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings, was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. CCR, Title 24, Part 11: California Green Building Standards Code (CALGreen) is a comprehensive and uniform regulatory code for all residential, commercial, and school buildings that went in effect on January 1, 2011, and is administered by the California Building Standards Commission. CALGreen is updated on a regular basis, with the most recent approved update consisting of the 2019 California Green Building Code Standards that will be effective January 1, 2020. Local jurisdictions are permitted to adopt more stringent requirements, as state law provides methods for local enhancements. CALGreen recognizes that many jurisdictions have developed existing construction and demolition ordinances and defers to them as the ruling guidance provided, they establish a minimum 65% diversion requirement. The code also provides exemptions for areas not served by construction and demolition recycling infrastructure. The State Building Code provides the minimum standard that buildings must meet in order to be certified for occupancy, which is generally enforced by the local building official.

Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases greenhouse gas (GHG) emissions. The 2019 version of Title 24 was adopted by the California Energy Commission (CEC) and became effective on January 1, 2020. The 2019 Title 24 standards will result in less energy use, thereby reducing air pollutant emissions associated with energy consumption in the SCAB and across the State of California. For example, the 2019 Title 24 standards will require solar photovoltaic systems for new homes, establish requirements for newly constructed healthcare facilities, encourage demand responsive technologies for residential buildings, and update indoor and outdoor lighting requirements for nonresidential buildings. The CEC anticipates that single-family homes built with the 2019 standards will use approximately 7% less energy compared to the residential homes built under the 2016 standards. Additionally, after implementation of solar photovoltaic systems, homes built under the 2019 standards will use about 53% less energy than homes built under the 2016 standards. Nonresidential buildings (such as the Project) will use approximately 30% less energy due to lighting upgrade requirements.

Because the Project will be constructed after January 1,2019, the 2019 CALGreen standards are applicable to the Project and require, among other items:

- Short-term bicycle parking. If the new project or an additional alteration is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 200 feet of the visitors' entrance, readily visible to passers-by, for 5% of new visitor motorized vehicle parking spaces being added, with a minimum of one two-bike capacity rack (5.106.4.1.1).
- Long-term bicycle parking. For new buildings with tenant spaces that have 10 or more tenant-occupants, provide secure bicycle parking for 5% of the tenant-occupant vehicular parking spaces with a minimum of one bicycle parking facility (5.106.4.1.2).
- Designated parking. In new projects or additions to alterations that add 10 or more vehicular parking spaces, provide designated parking for any combination of low-emitting, fuel-efficient and carpool/van pool vehicles as shown in Table 4.2-5.106.5.2 (5.106.5.2).
- Construction waste management. Recycle and/or salvage for reuse a minimum of 65% of the nonhazardous construction and demolition waste in accordance with Section 5.408.1.1. 5.405.1.2, or 5.408.1.3; or meet a local construction and demolition waste management ordinance, whichever is more stringent (5.408.1).

- Excavated soil and land clearing debris. 100% of trees, stumps, rocks and associated vegetation and soils resulting primarily from land clearing shall be reused or recycled. For a phased project, such material may be stockpiled on site until the storage site is developed (5.408.3).
- Recycling by Occupants. Provide readily accessible areas that serve the entire building and are identified for the depositing, storage and collection of non-hazardous materials for recycling, including (at a minimum) paper, corrugated cardboard, glass, plastics, organic waste, and metals or meet a lawfully enacted local recycling ordinance, if more restrictive (5.410.1).
- Water conserving plumbing fixtures and fittings. Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the following:
    - Water Closets. The effective flush volume of all water closets shall not exceed 1.28 gallons per flush (5.303.3.1)
    - Urinals. The effective flush volume of wall-mounted urinals shall not exceed 0.125 gallons per flush (5.303.3.2.1). The effective flush volume of floor-mounted or other urinals shall not exceed 0.5 gallons per flush (5.303.3.2.2).
    - Showerheads. Single showerheads shall have a minimum flow rate of not more than 1.8 gallons per minute and 80 psi (5.303.3.3.1). When a shower is served by more than one showerhead, the combine flow rate of all showerheads and/or other shower outlets controlled by a single valve shall not exceed 1.8 gallons per minute at 80 psi (5.303.3.3.2).
    - Faucets and fountains. Nonresidential lavatory faucets shall have a maximum flow rate of note more than 0.5 gallons per minute at 60 psi (5.303.3.4.1). Kitchen faucets shall have a maximum flow rate of not more than 1.8 gallons per minute of 60 psi (5.303.3.4.2). Wash fountains shall have a maximum flow rate of not more than 1.8 gallons per minute (5.303.3.4.3). Metering faucets shall not deliver more than 0.20 gallons per cycle (5.303.3.4.4). Metering faucets for wash fountains shall have a maximum flow rate not more than 0.20 gallons per cycle (5.303.3.4.5).
- Outdoor portable water use in landscaped areas. Nonresidential developments shall comply with a local water efficient landscape ordinance or the current California Department of Water Resources' Model Water Efficient (MWELO), whichever is more stringent (5.304.1).
- Water meters. Separate submeters or metering devices shall be installed for new buildings or additions in excess of 50,000 sf or for excess consumption where any tenant within a new building or within an addition that is project to consume more than 1,000 gal/day (5.303.1.1 and 5.303.1.2).
- Outdoor water use in rehabilitated landscape projects equal or greater than 2,500 sf. Rehabilitated landscape projects with an aggregate landscape area equal to or greater than 2,500 sf requiring a building or landscape permit (5.304.3).
- Commissioning. For new buildings 10,000 sf and over, building commissioning shall be included in the design and construction processes of the building project to verify that the building systems and components meet the owner's or owner representative's project requirements (5.410.2).

4.2.4 Thresholds of Significance

The Project has been evaluated to determine if it will violate an air quality standard, contribute to an existing or projected air quality violation, or determine if it will result in a cumulatively considerable net increase of a criteria pollutant for which the SCAB is non-attainment under an applicable NAAQS and CAAQS. Additionally, the Project has been evaluated to determine consistency with the

applicable AQMP, exposure of sensitive receptors to substantial pollutant concentrations, and the impacts of odors. The significance of these potential impacts is described in the following section.
The criteria used to determine the significance of potential Project-related air quality impacts are taken from the Initial Study Checklist in Appendix G of the State CEQA Guidelines (14 California Code of Regulations §§15000, et seq.). Based on these thresholds, a project would result in a significant impact related to air quality if it would:

a) Conflict with or obstruct implementation of the applicable air quality plan?
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?
c) Expose sensitive receptors to substantial pollutant concentrations?
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

The SCAQMD has also developed regional significance thresholds for other regulated pollutants, as summarized at Table 4.2-5. The SCAQMD's CEQA Air Quality Significance Thresholds (April 2019) indicate that any projects in the SCAB with daily emissions that exceed any of the indicated thresholds should be considered as having an individually and cumulatively significant air quality impact.

Table 4.2-5
MAXIMUM DAILY REGIONAL EMISSIONS THRESHOLDS

Pollutant	Construction Regional Thresholds	Operational Regional Thresholds
NO_X	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM_{10}	150 lbs/day	150 lbs/day
$PM_{2.5}$	55 lbs/day	55 lbs/day
SO_X	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Pb	3 lbs/day	3 lbs/day

lbs/day = Pounds Per Day

4.2.4.1 CalEEMod

Land uses such as the Project affect air quality through construction-source and operational-source emissions.

On October 17, 2017, the SCAQMD in conjunction with the California Air Pollution Control Officers Association (CAPCOA) and other California air districts, released the latest version of the California Emissions Estimator Model (CalEEMod) Version 2016.3.2. The purpose of this model is to calculate construction-source and operational-source criteria pollutant (VOCs, NOX, SOX, CO, PM10, and PM2.5) and GHG emissions from direct and indirect sources; and quantify applicable air quality and GHG reductions achieved from mitigation measures. Accordingly, the latest version of CalEEMod has been used for this Project to determine construction air quality emissions. Output from the model runs are provided in Appendices 3.1 through 3.8 within the AQIA, Appendix 2, Volume 2 of this document.

4.2.5 Environmental Consequences

a) Conflict with or obstruct implementation of the applicable air quality plan?

4.2.5(a).1 Air Quality Management Plan

The Project site is located within the SCAB, which is characterized by relatively poor air quality. The SCAQMD has jurisdiction over an approximately 10,743 square-mile area consisting of the four-county Basin and the Los Angeles County and Riverside County portions of what use to be referred to as the Southeast Desert Air Basin. In these areas, the SCAQMD is principally responsible for air pollution control, and works directly with the Southern California Association of Governments (SCAG), county transportation commissions, local governments, as well as state and federal agencies to reduce emissions from stationary, mobile, and indirect sources to meet state and federal ambient air quality standards.

Currently, these state and federal air quality standards are exceeded in most parts of the SCAB. In response, the SCAQMD has adopted a series of AQMPs to meet the state and federal ambient air quality standards. AQMPs are updated regularly in order to more effectively reduce emissions, accommodate growth, and to minimize any negative fiscal impacts of air pollution control on the economy.

In March 2017, the SCAQMD released the Final 2016 AQMP. The 2016 AQMP continues to evaluate current integrated strategies and control measures to meet the NAAQS, as well as, explore new and innovative methods to reach its goals. Some of these approaches include utilizing incentive programs, recognizing existing co-benefit programs from other sectors, and developing a strategy with fair-share reductions at the federal, state, and local levels. Similar to the 2012 AQMP, the 2016 AQMP incorporates scientific and technological information and planning assumptions, including the 2016 Regional Transportation Plan/Sustainable Communities Strategies (RTP/SCS), a planning document that supports the integration of land use and transportation to help the region meet the CAA requirements. The Project's consistency with the AQMP will be determined using the 2016 AQMP as discussed below.

Criteria for determining consistency with the AQMP are defined in Chapter 12, Section 12.2 and Section 12.3 of the SCAQMD's CEQA Air Quality Handbook (1993). These indicators are discussed below:

Consistency Criterion No. 1

The proposed Project will not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations or delay the timely attainment of air quality standards or the interim emissions reductions specified in the AQMP.

The violations that Consistency Criterion No. 1 refers to are the CAAQS and NAAQS. CAAQS and NAAQS violations would occur if regional or localized significance thresholds were exceeded.

Construction Impacts – Consistency Criterion 1

The violations that Consistency Criterion No. 1 refers to are the CAAQS and NAAQS. CAAQS and NAAQS violations would occur if localized or regional significance thresholds were exceeded. The Project would not exceed the applicable LST thresholds or regional significance thresholds for construction activity after implementation of applicable mitigation measures. Therefore, the Project would not conflict with the AQMP according to this criterion.

On the basis of the preceding discussion, the Project would not conflict with the AQMP according to this criterion.

Consistency Criterion No. 2

The Project will not exceed the assumptions in the AQMP based on the years of Project build-out phase.

The 2016 AQMP demonstrates that the applicable ambient air quality standards can be achieved within the timeframes required under federal law. Growth projections from local general plans adopted by counties in the district are provided to the SCAG, which develops regional growth forecasts, which are then used to develop future air quality forecasts for the AQMP. Development consistent with the growth projections in Chino Basin Watermaster General Plan is considered to be consistent with the AQMP.

Construction Impacts – Consistency Criterion 2
Peak day emissions generated by construction activities are largely independent of land use assignments, but rather are a function of development scope and maximum area of disturbance. Irrespective of the site's land use designation, development of the site to its maximum potential would likely occur, with disturbance of the entire site occurring during construction activities.

On the basis of the preceding discussion, the Project is determined to be consistent with the second criterion.

AQMP Consistency Conclusion
The Project would not result in or cause NAAQS or CAAQS violations. The Project's does not propose a land use development but rather involves pump station, well construction, monitoring and associated improvements. The Project is therefore considered to be consistent with the AQMP, and therefore the project would have a less than significant potential to conflict with or obstruct implementation of the applicable air quality plan.

b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

4.2.5(b).1 Regional Construction Emissions

As previously stated, the Project consists of the construction and operation of the following facilities:

Project Category 1: Well Development and Monitoring Devices
This Project Category includes the development of ASR, injection, pumping, groundwater level monitoring, and groundwater quality wells, associated well housing, as well as monitoring devices such as flow meters and extensometers. The proposed wells and monitoring devices will be installed throughout the Chino Basin.

Well development includes up to 60 new ASR wells, 10 wells relocated to adjust up to 25,000 afy of pumping, and 8 new wells to expand desalter capacity for a total of 78 new wells. In addition, the OBMPU anticipates reconstruction and/or modification of up to 5 wells to mitigate loss of pumping capacity, and destruction of 5 wells. This category also includes the development of 100 monitoring wells, for a total of up to 178 wells, which serve the varying purposes listed above and outlined below. The monitoring devices proposed as part of the OBMPU include up to 300 flow meters, up to 100 transducer data loggers, and 3 extensometers installed in existing private wells.

Project Category 2: Conveyance Facilities and Related Infrastructure
This category includes the construction of up to 550,000 LF of new pipelines, booster pump stations, reservoirs and minor appurtenances whose number, locations and capacities are presently unknown. The proposed conveyance facilities and ancillary facilities would be implemented throughout the entire Chino Basin.

Project Category 3: Storage Basins and Recharge Facilities and Storage Bands
This Project Category includes the construction of up to 310 acres of new storage basins—several locations for which are within existing facilities, improvements to existing storage basin(s), 200 acres of flood MAR facilities, new MS4-compliance facilities, and expansion of the maximum storage space (safe storage capacity) to be used within the Chino Basin from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af within this range of storage. The specific locations of the new and existing storage basins are described in the Project Description, above; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

Project Category 4: Desalters and Water Treatment Facilities
The projects proposed under this category are: upgrades at IEUA's existing Treatment Plants (previously analyzed in IEUA's 2017 FMP PEIR), a new advanced water treatment plant (previously analyzed in IEUA's 2017 FMP PEIR), improvements to the WFA Agua de Lejos Treatment Plant, upgrades to the Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities. Impacts related to the facilities thoroughly analyzed as part of the IEUA's 2017 FMP PEIR are assumed to be part of the baseline and will not be analyzed further as part of the OBMPU.

Because few details are known at this time regarding construction of specific projects, it is assumed that construction of any Project facilities may occur simultaneously. As a conservative measure, and in order to identify the maximum daily emissions, this AQIA assumes that the Project would construct the following features simultaneously:

Project Category 1
- 20 monitoring wells
- 10 production wells
- 65,000 linear feet (LF) of associated conveyance pipeline

Project Category 2
- 200,000 LF of conveyance pipeline

Project Category 3
- One new storage reservoir on a 100-acre site
- 60,000 LF of associated conveyance pipeline

Project Category 4
- One new water treatment facility on a 10-acre site
- One new regional water treatment facility on a 10-acre site
- 60,000 LF of associated conveyance pipeline

4.2.5(b).1.1 Construction Activities

During construction activities associated with individual projects, emissions of VOCs, NO_X, SO_X, CO, PM_{10}, and $PM_{2.5}$ will likely be released through the burning of fossil fuel in construction equipment, grading fugitive dust, asphalt paving, and the application of architectural coatings during painting activity.

Grading Activities
Dust is typically a major concern during grading activities. Because such emissions are not amenable to collection and discharge through a controlled source, they are called “fugitive emissions”. Fugitive dust emissions rates vary as a function of many parameters (soil silt, soil moisture, wind speed, area disturbed, number of vehicles, depth of disturbance or excavation, etc.). The CalEEMod model was utilized to calculate fugitive dust emissions resulting from this phase of activity. The Project is anticipated to include soil import and export within the Project site boundaries as a part of Project construction. Per the Project Description, it is anticipated that no more than 2 million cubic yards of material would be hauled off-site during the construction of the storage reservoirs. For purposes of analysis, and as a conservative measure, it is anticipated that 333,333 cubic yards of export will be required per storage reservoir. As such, the 333,333 cubic yards of export will be analyzed with the CalEEMod default hauling trip length of 20 miles.

Construction Worker Vehicle Trips
Construction emissions for construction worker vehicles traveling to and from the Project site, as well as vendor trips (construction materials delivered to the Project site) were estimated based on information from CalEEMod model defaults.

4.2.5(b).1.2 Construction Duration

As previously stated, individual project-specific details are currently unknown. Based on information provided in the Project Description, construction activities for Project Categories 1 and 2 are expected to occur over a 12-month period while construction activities for Project Categories 3 and 4 will occur over an 18-month period. Construction duration utilized in the analysis represents a “worst-case” analysis scenario should construction occur any time after the respective dates since emission factors for construction decrease as the analysis year increases.

4.2.5(b).1.3 Construction Equipment

Associated equipment was based on information provided by the Project Description. Please refer to specific detailed modeling inputs/outputs contained in Appendices 3.1 through 3.4 of the AQIA. A detailed summary of construction equipment is provided at Table 4.2-6.

It is assumed that the construction of analyzed features would use the equipment listed in Table 4.2-7 simultaneously. Furthermore, the construction equipment provided in Table 4.2-7 represent a “worst-case” (i.e. overestimation) of actual construction equipment that may likely be used during construction activities.

Table 4.2-6
CONSTRUCTION EQUIPMENT ASSUMPTIONS

Equipment	CalEEMod Equivalent	Amount	Hours Per Day
Project Category 1			
Bore/Drill Rigs	Bore/Drill Rigs	1	8
Cement Trucks	Off-Highway Trucks	1	8
Project Category 2			
Backhoes	Tractor/Loaders/Backhoes	2	8
Dump Trucks	Off-Highway Trucks	2	8
Excavators	Excavators	2	8
Pavers	Pavers	2	8
Rollers	Rollers	2	8
Water Trucks	Off-Highway Trucks	20	8
Project Category 3			
Bulldozers	Rubber Tired Dozers	2	8
Dump Trucks	Off-Highway Trucks	4	8
Excavators	Excavators	2	8
Loaders	Tractors/Loaders/Backhoes	2	8
Scrapers	Scrapers	7	8
Water Trucks	Off-Highway Trucks	2	
Project Category 4			
Backhoes	Tractors/Loaders/Backhoes	3	8
Compactors	Plate Compactors	3	8
Concrete Trucks	Off-Highway Trucks	3	8
Cranes	Cranes	3	8
Delivery Trucks	Off-Highway Trucks	3	8
Dump Trucks	Off-Highway Trucks	3	8
Graders	Graders	3	8
Loaders	Tractors/Loaders/Backhoes	3	8
Other Trucks	Off-Highway Trucks	3	8
Water Trucks	Off-Highway Trucks	3	8

Source: Construction equipment based on information provided by the Project Description.

4.2.5(b).1.4 Regional Construction Emissions Summary

Impacts Without Mitigation

The estimated maximum daily construction emissions without mitigation are summarized on Table 4.2-7. Detailed construction model outputs are presented in Appendices 3.1, 3.3, 3.5, and 3.7 within the AQIA. Under the assumed scenarios, emissions resulting from the Project construction would exceed criteria pollutant thresholds established by the SCAQMD for emissions of NO_X.

Table 4.2-7
OVERALL CONSTRUCTION MISSIONS SUMMARY <u>WITHOUT MITIGATION</u>

Year	Emissions (lbs/day)					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Summer						
Project Category 1	1.24	16.53	8.31	0.07	2.14	0.78
Project Category 2	15.56	138.27	104.19	0.35	7.00	5.25
Project Category 3	13.21	138.33	90.88	0.23	11.56	7.93
Project Category 4	12.52	115.57	80.14	0.27	6.70	4.54
Total	42.52	408.70	283.51	0.92	27.40	18.50
Winter						
Project Category 1	1.25	16.75	8.23	0.07	2.14	0.78
Project Category 2	15.59	138.38	103.65	0.35	7.00	5.25
Project Category 3	13.21	138.37	90.77	0.23	11.56	7.93
Project Category 4	12.54	115.66	79.54	0.27	6.70	4.54
Total	42.58	409.16	282.18	0.92	27.40	18.50
Maximum Daily Emissions	**42.58**	**409.16**	**283.51**	**0.92**	**27.40**	**18.50**
SCAQMD Regional Threshold	75	100	550	150	150	55
Threshold Exceeded?	**NO**	**YES**	**NO**	**NO**	**NO**	**NO**

Source: The unmitigated CalEEMod regional construction-source emissions are presented in Appendices 3.1, 3.3, 3.5, and 3.7 within the AQIA.

Impacts Without Mitigation

The estimated maximum daily construction emissions with mitigation are summarized on Table 4.2-8. Detailed construction model outputs are presented in Appendices 3.2, 3.4, 3.6, and 3.8.

Table 4.2-8
OVERALL CONSTRUCTION MISSIONS SUMMARY <u>WITH MITIGATION</u>

Year	Emissions (lbs/day)					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Summer						
Project Category 1	0.65	9.45	12.84	0.07	1.82	0.54
Project Category 2	5.40	33.65	156.30	0.35	2.95	1.62
Project Category 3	3.11	16.74	104.41	0.23	4.71	2.46
Project Category 4	4.42	27.63	117.81	0.27	3.10	1.49
Total	13.58	87.47	391.36	0.92	12.58	6.11
Winter						
Project Category 1	0.66	9.67	12.77	0.07	1.82	0.54
Project Category 2	5.42	33.77	155.76	0.35	2.95	1.62
Project Category 3	3.11	16.78	104.30	0.23	4.71	2.46
Project Category 4	4.44	27.72	117.20	0.27	3.10	1.49
Total	13.64	87.93	390.03	0.92	12.58	6.11

Year	Emissions (lbs/day)					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Maximum Daily Emissions	**13.64**	**87.93**	**391.36**	**0.92**	**12.58**	**6.11**
SCAQMD Regional Threshold	75	100	550	150	150	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

Source: The unmitigated CalEEMod regional construction-source emissions are presented in Appendices 3.2, 3.4, 3.6, and 3.8 within the AQIA.

Mitigation Measure (MM) **AQ-1** is recommended to reduce the severity of the impacts. After implementation of MM **AQ-1**, Project construction-source emissions of NO_X would not exceed the applicable SCAQMD thresholds for any criteria pollutant. Thus, a less than significant impact would occur for Project-related construction-source emissions.

4.2.5(b).2 Regional Operational Emissions

Long-term air quality impacts occur from mobile source emission generated from project-related traffic and from stationary source emissions generated from natural gas. The proposed Project primarily involves construction activity. For on-going operations, mobile emissions would be generated by the motor vehicles traveling to and from the Project sites during on-going maintenance. However, the Project would generate a nominal number of traffic trips (assumed to be less than 50 round trips per day) for periodic maintenance and inspections and would not result in any substantive new long-term emissions sources.

Stationary area source emissions are typically generated by the consumption of natural gas for space and water heating devices and the use of consumer products. As this Project involves the construction of wells, conveyance facilities and ancillary facilities, storage basins, recharge facilities, storage bands, desalters and water treatment facilities, and associated improvements, heating and consumer products would not be used. Stationary energy emissions would result from energy consumption associated with the proposed Project. However, the proposed Project may include the use of an emergency diesel generator, allowing the pump station to run on backup power in case of emergency. If a backup generator is installed, the lead agency would be required to obtain the applicable permits from SCAQMD for operation of such equipment. The SCAQMD is responsible for issuing permits for the operation of stationary sources in order to reduce air pollution, and to attain and maintain the national and California ambient air quality standards in the SCAB.

The Project would not result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment. Backup generators would be used only in emergency situations and for routine testing and maintenance purposes and would not contribute a substantial amount of emissions capable of exceeding SCAQMD thresholds. As project operations would not exceed SCAQMD thresholds, the project would not violate an air quality standard or contribute to an existing violation. Therefore, project operations would not result in a cumulatively considerable net increase of any criteria pollutant and impacts would be less than significant.

c) Expose sensitive receptors to substantial pollutant concentrations?

4.2.5(c).1 Localized Significance

For this Project, as the majority of the Project is located within the Southwest San Bernardino Valley, SRA 33 will be used for the LST analysis. LSTs apply to CO, NO_2, PM_{10}, and $PM_{2.5}$. The SCAQMD produced look-up tables for projects less than or equal to 5 acres in size.
In order to determine the appropriate methodology for determining localized impacts that could occur as a result of Project-related construction, the following process is undertaken:

- CalEEMod is utilized to determine the maximum daily on-site emissions that will occur during construction activity.
- The SCAQMD's *Fact Sheet for Applying CalEEMod to Localized Significance Thresholds* and CalEEMod User's Guide *Appendix A: Calculation Details for CalEEMod* is used to determine the maximum site acreage that is actively disturbed based on the construction equipment fleet and equipment hours as estimated in CalEEMod.
- If the total acreage disturbed is less than or equal to five acres per day, then the SCAQMD's screening look-up tables are utilized to determine if a Project has the potential to result in a significant impact. The look-up tables establish a maximum daily emissions threshold in lbs/day that can be compared to CalEEMod outputs.
- If the total acreage disturbed is greater than five acres per day, then LST impacts are appropriately evaluated through dispersion modeling.
- The LST methodology presents mass emission rates for each SRA, project sizes of 1, 2, and 5 acres, and nearest receptor distances of 25, 50, 100, 200, and 500 meters. For project sizes between the values given, or with receptors at distances between the given receptors, the methodology uses linear interpolation to determine the thresholds.

4.2.5(c).1.1 Emissions Considered

SCAQMD's Methodology clearly states that "off-site mobile emissions from the Project should not be included in the emissions compared to LSTs (23)." Therefore, for purposes of the construction LST analysis, only emissions included in the CalEEMod "on-site" emissions outputs were considered.

4.2.5(c).1.2 Maximum Daily Disturbed-Acreage

Based on information provided in the Project Description, the average disturbance for Project Category 1 construction activities, it is anticipated to be half an acre. For Project Category 2 activities, it is anticipated that roughly half an acre would be actively disturbed on a given day. For Project Category 3 construction activities, it is estimated that no more than 2 acres will be actively disturbed. Lastly, during Project Category 4 activities, the maximum area expected to be disturbed during construction is 2 acres.

4.2.5(c).1.3 Sensitive Receptors

As previously stated, LSTs represent the maximum emissions from a project that will not cause or contribute to an exceedance of the most stringent applicable NAAQS and CAAQS at the nearest residence or sensitive receptor. Receptor locations are off-site locations where individuals may be exposed to emissions from Project activities.

Some people are especially sensitive to air pollution and are given special consideration when evaluating air quality impacts from projects. These groups of people include children, the elderly, individuals with pre-existing respiratory or cardiovascular illness, and athletes and others who engage in frequent exercise. Structures that house these persons or places where they gather to exercise are defined as "sensitive receptors". These structures typically include residences, hotels, hospitals, etc. as they are also known to be locations where an individual can remain for 24 hours. Consistent with the LST Methodology, the nearest land use where an individual could remain for 24 hours to the Project site (in this case the nearest residential land use) has been used to determine construction and operational air quality impacts for emissions of PM_{10} and $PM_{2.5}$, since PM_{10} and $PM_{2.5}$ thresholds are based on a 24-hour averaging time.

Commercial and industrial facilities are not included in the definition of sensitive receptor because employees and patrons do not typically remain onsite for a full 24 hours but are typically onsite for eight hours or less. The LST Methodology explicitly states that "*LSTs based on shorter averaging periods, such as the NO_2 and CO LSTs, could also be applied to receptors such as industrial or commercial facilities since it is reasonable to assume that a worker at these sites could be present for periods of one to eight hours* (23)." For purposes of analysis, if an industrial/commercial use is located at a closer distance to the Project site than the nearest residential use, the nearest industrial/commercial use will be utilized to determine construction and operational LST air impacts for emissions of NO_2 and CO an individual could be present at these sites for periods of one to eight hours.

4.2.5(c).1.4 Project Related Sensitive Receptors

The SCAQMD recommends that the nearest sensitive receptor be considered when determining the Project's potential to cause an individual and cumulatively significant impact. As the location of many of these project sites are unknown, it is assumed that the nearest sensitive receptor could potentially be located immediately adjacent to construction activities. It should be noted that the LST Methodology also explicitly states that "It is possible that a project may have receptors closer than 25 meters. Projects with boundaries located closer than 25 meters to the nearest receptor should use the LSTs for receptors located at 25 meters." Consistent with the SCAQMD's LST Methodology, a 25-meter receptor distance is utilized in this analysis and provide for a conservative i.e. "health protective" standard of care.

4.2.5(c).2 Localized Construction-Source Emissions

4.2.5(c).2.1 Localized Thresholds For Construction Activity

Since the total acreage disturbed is less than five acres per day for construction activities, the SCAQMD's screening look-up tables are utilized in determining impacts. It should be noted that since the look-up tables identifies thresholds at only 1 acre, 2 acres, and 5 acres, linear regression has been utilized to determine localized significance thresholds. Consistent with SCAQMD guidance, the thresholds presented in Table 4.2-9 were calculated by interpolating the threshold values for the Project's disturbed acreage.

Table 4.2-9
MAXIMUM DAILY LOCALIZED EMISSIONS THRESHOLDS

Pollutant	Construction Localized Thresholds
Project Category 1	
NO_X	118 lbs/day
CO	863 lbs/day
PM_{10}	5 lbs/day
$PM_{2.5}$	4 lbs/day
Project Category 2	
NO_X	118 lbs/day
CO	863 lbs/day
PM_{10}	5 lbs/day
$PM_{2.5}$	4 lbs/day
Project Category 3	
NO_X	170 lbs/day
CO	1,232 lbs/day
PM_{10}	5 lbs/day
$PM_{2.5}$	4 lbs/day
Project Category 4	
NO_X	170 lbs/day
CO	1,232 lbs/day
PM_{10}	5 lbs/day
$PM_{2.5}$	4 lbs/day

Source: Localized Thresholds presented in this table are based on the SCAQMD Final Localized Significance Threshold Methodology, July 2008

4.2.5(c).2.2 Construction-Source Localized Emissions

Impacts Without Mitigation

Table 4.2-10 identifies the localized impacts at the nearest receptor location in the vicinity of the Project. Without mitigation, localized construction emissions would exceed the applicable SCAQMD LSTs for emissions of PM_{10}. Outputs from the model runs for unmitigated construction LSTs are provided in Appendix 3.1 within the AQIA.

Impacts With Mitigation

Table 4.2-11 identifies mitigated localized impacts at the receptors nearest the Project site. After implementation of mitigation measure (**MM AQ-1**), construction-source emissions would not exceed the applicable SCAQMD LSTs thresholds and would be less than significant. Outputs from the model runs for mitigated localized construction-source emissions are provided in Appendix 3.2 of the AQIA.

Table 4.2-10
LOCALIZED SIGNIFICANCE SUMMARY OF CONSTRUCTION – WITHOUT MITIGATION

On-Site Construction Emissions	Emissions (lbs/day)			
	NO_X	CO	PM_{10}	$PM_{2.5}$
Project Category 1				
Maximum Daily Emissions	**8.29**	**5.68**	**0.49**	**0.28**
SCAQMD Localized Threshold	118	863	5	4
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**
Project Category 2				
Maximum Daily Emissions	**133.40**	**100.22**	**5.39**	**4.79**
SCAQMD Localized Threshold	118	863	5	4
Threshold Exceeded?	**YES**	**NO**	**YES**	**YES**
Project Category 3				
Maximum Daily Emissions	**136.70**	**89.91**	**11.13**	**7.81**
SCAQMD Localized Threshold	170	1,232	5	4
Threshold Exceeded?	**NO**	**NO**	**YES**	**YES**
Project Category 4				
Maximum Daily Emissions	**896.04**	**76.21**	**5.21**	**4.13**
SCAQMD Localized Threshold	170	1,232	5	4
Threshold Exceeded?	**YES**	**NO**	**YES**	**YES**

Source: CalEEMod localized construction-source emissions are presented in Appendix 3.2 of the AQIA.

Table 4.2-11
LOCALIZED SIGNIFICANCE SUMMARY OF CONSTRUCTION – WITH MITIGATION

On-Site Construction Emissions	Emissions (lbs/day)			
	NO_X	CO	PM_{10}	$PM_{2.5}$
Project Category 1				
Maximum Daily Emissions	**8.29**	**5.68**	**0.49**	**0.28**
SCAQMD Localized Threshold	118	863	5	4
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**
Project Category 2				
Maximum Daily Emissions	**28.79**	**152.33**	**1.34**	**1.16**
SCAQMD Localized Threshold	118	863	5	4
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**
Project Category 3				
Maximum Daily Emissions	**15.11**	**103.43**	**4.27**	**2.34**
SCAQMD Localized Threshold	170	1,232	5	4
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**
Project Category 4				
Maximum Daily Emissions	**23.91**	**113.88**	**1.61**	**1.07**
SCAQMD Localized Threshold	170	1,232	5	4
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**

Source: CalEEMod localized construction-source emissions are presented in Appendix 3.2 of the AQIA.

4.2.5(c).2.3 Operational-Source Localized Emissions

According to SCAQMD localized significance threshold methodology, LSTs would apply to the operational phase of a proposed project if the project includes stationary sources or attracts mobile sources that may spend extended periods queuing and idling at the site (e.g., warehouse or transfer facilities). As previously discussed, the Project would generate a nominal number of traffic trips in the context of on-going maintenance resulting in a negligible amount of new mobile source emissions. Additionally, all pumps associated with the Project are assumed to be electrically powered and would not directly generate air emissions. However, the proposed Project may include the use of an emergency diesel generators, allowing pump stations to run on backup power in case of emergency. If backup generators would be installed, the lead agency would be required to obtain the applicable permits from SCAQMD for operation of such equipment. The SCAQMD is responsible for issuing permits for the operation of stationary sources in order to reduce air pollution, and to attain and maintain the national and California ambient air quality standards in the SCAB. Upon compliance with SCAQMD permitting procedures, localized emissions from any potential diesel generator would not result in substantial pollutant concentrations capable of exceeding operational LST thresholds. Therefore, the Project would not expose sensitive receptors to substantial pollutant concentrations and impacts would be less than significant.

4.2.5(c).2.4 CO “Hot Spot” Analysis

As discussed below, the Project would not result in potentially adverse CO concentrations or “hot spots.” Further, detailed modeling of Project-specific CO “hot spots” is not needed to reach this conclusion. An adverse CO concentration, known as a “hot spot”, would occur if an exceedance of the state one-hour standard of 20 ppm or the eight-hour standard of 9 ppm were to occur. At the time of the 1993 Handbook, the SCAB was designated nonattainment under the CAAQS and NAAQS for CO.

It has long been recognized that CO hotspots are caused by vehicular emissions, primarily when idling at congested intersections. In response, vehicle emissions standards have become increasingly stringent in the last twenty years. Currently, the allowable CO emissions standard in California is a maximum of 3.4 grams/mile for passenger cars (there are requirements for certain vehicles that are more stringent). With the turnover of older vehicles, introduction of cleaner fuels, and implementation of increasingly sophisticated and efficient emissions control technologies, CO concentration in the SCAB is now designated as attainment, as previously noted in Table 4.2-3. Also, CO concentrations in the Project vicinity have steadily declined. To establish a more accurate record of baseline CO concentrations affecting the SCAB, a CO “hot spot” analysis was conducted in 2003 for four busy intersections in Los Angeles at the peak morning and afternoon time periods. This “hot spot” analysis did not predict any violation of CO standards, as shown on Table 4.2-12.

Table 4.2-12
CO MODEL RESULTS

Intersection Location	CO Concentrations (ppm)		
	Morning 1-hour	Afternoon 1-hour	8-hour
Wilshire Boulevard/Veteran Avenue	4.6	3.5	3.7
Sunset Boulevard/Highland Avenue	4	4.5	3.5
La Cienega Boulevard/Century Boulevard	3.7	3.1	5.2
Long Beach Boulevard/Imperial Highway	3	3.1	8.4

Source: 2003 AQMP, Appendix V: Modeling and Attainment Demonstrations
Notes: Federal 1-hour standard is 35 ppm and the deferral 8-hour standard is 9.0 ppm

Based on the SCAQMD's 2003 AQMP and the 1992 Federal Attainment Plan for Carbon Monoxide (1992 CO Plan), peak CO concentrations in the SCAB were a result of unusual meteorological and topographical conditions and not a result of traffic volumes and congestion at a particular intersection. As evidence of this, for example, 8.4 ppm CO concentration measured at the Long Beach Blvd. and Imperial Hwy. intersection (highest CO generating intersection within the “hot spot” analysis), only 0.7 ppm was attributable to the traffic volumes and congestion at this intersection; the remaining 7.7 ppm were due to the ambient air measurements at the time the 2003 AQMP was prepared. Therefore, even if the traffic volumes for the proposed Project were double or even triple of the traffic volumes generated at the Long Beach Blvd. and Imperial Hwy. intersection, coupled with the on-going improvements in ambient air quality, the Project would not be capable of resulting in a CO “hot spot” at any study area intersections.

Similar considerations are also employed by other Air Districts when evaluating potential CO concentration impacts. More specifically, the Bay Area Air Quality Management District (BAAQMD) concludes that under existing and future vehicle emission rates, a given project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour (vph)—or 24,000 vph where vertical and/or horizontal air does not mix—in order to generate a significant CO impact.

Traffic volumes generating the CO concentrations for the “hot spot” analysis, shown on Table 4.2-13. The busiest intersection evaluated was that at Wilshire Blvd. and Veteran Ave., which has a daily traffic volume of approximately 100,000 vph. The 2003 AQMP estimated that the 1-hour concentration for this intersection was 4.6 ppm; this indicates that, should the daily traffic volume increase four times to 400,000 vehicles per day, CO concentrations (4.6 ppm x 4= 18.4 ppm) would still not likely exceed the most stringent 1-hour CO standard (20.0 ppm).[5] At buildout of the Project, the highest daily traffic volumes generated at the roadways within the vicinity of the Project are expected to generate less than the highest daily traffic volumes generated at the busiest intersection in the CO “hot spot” analysis. As such, the Project would not likely exceed the most stringent 1-hour CO standard.

Table 4.2-13
TRAFFIC VOLUMES

Intersection Location	Peak Traffic Volumes (vph)				
	Eastbound (AM/PM)	Westbound (AM/PM)	Southbound (AM/PM)	Northbound (AM/PM)	Total (AM/PM)
Wilshire Boulevard/Veteran Avenue	4,954/2,069	1,830/3,317	721/1,400	560/933	8,062/7,719
Sunset Boulevard/Highland Avenue	1,417/1,764	1,342/1,540	2,304/1,832	1,551/2,238	6,614/5,374
La Cienega Boulevard/Century Boulevard	2,540/2,243	1,890/2,728	1,384/2,029	821/1,674	6,634/8,674
Long Beach Boulevard/Imperial Highway	1,217/2,020	1,760/1,400	479/944	756/1,150	4,212/5,514

Source: 2003 AQMP

4.2.5(c).2.5 Potential Impacts to Sensitive Receptors

The potential impact of Project-generated air pollutant emissions at sensitive receptors has also been considered. Sensitive receptors can include uses such as long-term health care facilities, rehabilitation centers, and retirement homes. Residences, schools, playgrounds, childcare centers, and athletic facilities can also be considered as sensitive receptors.

[5] Based on the ratio of the CO standard (20.0 ppm) and the modeled value (4.6 ppm).

Results of the LST analysis indicate that, the Project would not exceed the SCAQMD localized significance thresholds during construction. Therefore, sensitive receptors would not be exposed to substantial pollutant concentrations during Project construction.

Results of the LST analysis indicate that the Project would not exceed the SCAQMD localized significance thresholds during construction activity. Further Project traffic would not create or result in a CO "hotspot." Therefore, sensitive receptors would not be exposed to substantial pollutant concentrations as the result of Project construction.

d) Would the Project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

The potential for the Project to generate objectionable odors has also been considered. Land uses generally associated with odor complaints include:

- Agricultural uses (livestock and farming)
- Wastewater treatment plants
- Food processing plants
- Chemical plants
- Composting operations
- Refineries
- Landfills
- Dairies
- Fiberglass molding facilities

The Project does not contain land uses typically associated with emitting objectionable odors. Potential odor sources associated with the proposed Project may result from construction equipment exhaust during construction activities and the temporary storage of typical solid waste (refuse) associated with the proposed Project's uses. Standard construction requirements would minimize odor impacts from construction. The construction odor emissions would be temporary, short-term, and intermittent in nature and would cease upon completion of the respective phase of construction and is thus considered less than significant. It is expected that Project-generated refuse would be stored in covered containers and removed at regular intervals in compliance with the lead agency's solid waste regulations. The Project would be required to comply with SCAQMD Rule 402 to prevent occurrences of public nuisances. Therefore, odors associated with the proposed Project construction and operations would be less than significant and no mitigation is required

4.2.6 Avoidance, Minimization and Mitigation Measures

Measures listed below (or equivalent language) shall appear on all Project grading plans, construction specifications and bid documents, and the Cities' shall ensure such language is incorporated prior to issuance of any development permits. South Coast Air Quality Management District (SCAQMD) Rules that are currently applicable during construction activity for this Project include but are not limited to Rule 403 (Fugitive Dust) (2) and Rule 1113 (Architectural Coatings) (3). It should be noted that these Best Available Control Measures (BACMs) are not mitigation as they are standard regulatory requirements. As such, credit for Rule 403 and Rule 1113 have been taken.

The following BACM shall be enforced as a standard regulatory requirements as follows:

The contractor shall adhere to applicable measures contained in Table 1 of Rule 403 including, but not limited to (2):

- *All clearing, grading, earth-moving, or excavation activities shall cease when winds exceed 25 miles per hour (mph) per SCAQMD guidelines in order to limit fugitive dust emissions.*
- *The contractor shall ensure that all disturbed unpaved roads and disturbed areas within the Project are watered at least three (3) times daily during dry weather. Watering, with complete coverage of disturbed areas, shall occur at least three times a day, preferably in the mid-morning, afternoon, and after work is done for the day.*
- *The contractor shall ensure that traffic speeds on unpaved roads and Project site areas are limited to 15 mph or less.*

4.2.6.1 Construction-Related Mitigation Measures

Project construction activities require mitigation to minimize construction-related impacts. As such, implementation of the following mitigation measures, including BACMs and Rules restated herein for emphasis, can reduce potentially significant construction-related air quality impacts to a less than significant level or to the extent feasible.

AQ-1 ***When using construction equipment greater than 150 horsepower (>150 hp), the Construction Contractor shall ensure that off-road diesel construction equipment complies with the Environmental Protection Agency (EPA)/California Air Resources Board (CARB) Tier 4 emissions standards or equivalent and shall ensure that all construction equipment is tuned and maintained in accordance with the manufacturer's specifications.***

AQ-2 ***All actively graded areas within the Project site shall be watered at 2.1-hour watering intervals (e.g., 4 times per day) or a movable sprinkler system shall be in place to ensure minimum soil moisture of 12 percent (%) in maintained for actively graded areas. Moisture content can be verified with use of a moisture probe by the grading contractor.***

4.2.7 Cumulative Impacts

As previously shown in Table 4.2-3, the CAAQS designate the Project site as nonattainment for O_3 PM_{10}, and $PM_{2.5}$ while the NAAQS designates the Project site as nonattainment for O_3 and $PM_{2.5}$.

The AQMD has published a report on how to address cumulative impacts from air pollution: *White Paper on Potential Control Strategies to Address Cumulative Impacts from Air Pollution.* In this report the AQMD clearly states (Page D-3):

"…the AQMD uses the same significance thresholds for project specific and cumulative impacts for all environmental topics analyzed in an Environmental Assessment or Environmental Impact Report (EIR). The only case where the significance thresholds for project specific and cumulative impacts differ is the Hazard Index (HI) significance threshold for TAC emissions. The project specific (project increment) significance threshold is HI > 1.0 while the cumulative (facility-wide) is HI > 3.0. It should be noted that the HI is only one of three TAC emission significance thresholds considered (when applicable) in a CEQA analysis. The other two are the maximum individual cancer risk (MICR) and the cancer burden, both of which use the same significance thresholds (MICR of 10 in 1 million and cancer burden of 0.5) for project specific and cumulative impacts.

Projects that exceed the project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable. This is the reason project-specific and cumulative significance thresholds are the same. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant."

Therefore, this analysis assumes that individual projects that do not generate operational or construction emissions that exceed the SCAQMD's recommended daily thresholds for project-specific impacts would also not cause a cumulatively considerable increase in emissions for those pollutants for which the Basin is in nonattainment, and, therefore, would not be considered to have a significant, adverse air quality impact. Alternatively, individual project-related construction and operational emissions that exceed SCAQMD thresholds for project-specific impacts would be considered cumulatively considerable.

4.2.7.1 Construction Impacts

The Project-specific evaluation of emissions presented in the preceding analysis demonstrates that Project construction-source air pollutant emissions would not result in exceedances of regional thresholds. Therefore, Project construction-source emissions would be considered less than significant on a project-specific and cumulative basis.

4.2.8 Unavoidable Significant Impacts

The Programmatic evaluation of emissions presented in the preceding analysis demonstrates that after implementation of the recommended mitigation measures, neither construction or operation of the proposed OBMPU would result in any exceedance of thresholds for a criteria pollutant. Furthermore, the Project is consistent with the AQMP; the air quality impact for Project-related LST impacts are considered to be less than significant; and, sensitive receptors would not be subject to a significant air quality impact during Project construction or operations. Therefore, no unavoidable significant impact to air quality will result from implementing the proposed Project.

4.3 BIOLOGICAL RESOURCES

4.3.1 <u>Introduction</u>

This Subchapter will evaluate the environmental impacts to the issue area of biological resources from implementation of the Optimum Basin Management Program Update (OBMPU). The thresholds analyzed in this Subchapter are derived from Appendix G of the CEQA Guidelines, which identifies the issues that examine whether the proposed Project would have a substantial adverse effect upon biological resources on the proposed project site as well as a substantial effect upon any biological resources adjacent to the proposed project site.

The Notice of Preparation determined that all of these issue areas would be analyzed in the DSEIR. These issues will be discussed below as set forth in the following framework:

4.3.1 <u>Introduction</u>
4.3.2 <u>Environmental Setting: Biological and Physical Conditions of the Chino Basin</u>
4.3.3 <u>Regional Special Status Species and Habitats of Concern</u>
4.3.4 <u>Regulatory Setting</u>
4.3.5 <u>Thresholds of Significance</u>
4.3.6 <u>Potential Impacts</u>
4.3.7 <u>Avoidance, Minimization and Mitigation Measures</u>
4.3.8 <u>Cumulative Impact</u>
4.3.9 <u>Unavoidable Adverse Impacts</u>

The following references were used in prepared this Subchapter of the DEIR:

- Jacobs Engineering Group, *Program Biological Resources Report, Optimum Basin Management Program Update for the Chino Basin Watermaster and Inland Empire Utilities Agency*, March 15, 2020 (provided as Appendix 3, Volume 2 of this DSEIR)

One comment specific to this topic was received in response to the Notice of Preparation.
Comment Letter #2 from Orange County Water District (OCWD) (dated 3/6/20) states:

- OCWD has statutory authority over and extensive activities within Prado Basin.
- The distribution of riparian vegetation and wetlands in the Prado Basin relies on rising groundwater or groundwater seepage as a Groundwater Dependent Ecosystem.
- The OBMPU EIR should evaluate potential effects that the proposed project might have on the Groundwater Dependent Ecosystem in Prado Basin.
- The OBMPU EIR should assess how the proposed projects would change or effect surface flow rates in Chino Creek, Mill Creek, and the Santa Ana River.
- The OBMPU EIR should assess how changes in surface water flow rates in these water bodies affect the levels and availability of shallow groundwater in and around Prado Basin.
- The OBMPU EIR should assess the effects that OBMPU related changes in groundwater levels will have on sensitive riparian vegetation and riparian habitats.
- The OBMPU EIR should assess how changes in groundwater pumping, groundwater storage levels, or groundwater overdraft affect the levels and availability of shallow groundwater in and around Prado Basin, and the effects these changes will have on sensitive riparian vegetation and riparian habitats.
- The OBMPU EIR should evaluate potential impacts of increased fire risk, riparian habitat loss, and riparian habitat conversion to non-native plant species that might occur to the proposed OBMPU Projects.

- The OBMPU EIR should provide a quantitative analysis regarding how OBMPU projects would affect Santa Ana River flows reaching Prado Basin.
- The OBMPU EIR should provide a quantitative analysis regarding how OBMPU projects would cumulatively impact Prado Basin habitat and groundwater levels in relation to those projects identified in the habitat conservation plan.

No comments were received at the scoping meeting held for the proposed Project. Much of the following text is abstracted directly from the report in Appendix 3 of Volume 2.

4.3.2 Environmental Setting: Biological and Physical Conditions of the Chino Basin

The Chino Basin is one of the largest groundwater basins in Southern California and has an unused storage capacity of over 1,000,000 acre-feet. The Chino Basin covers approximately 235 square miles within the Upper Santa Ana River Watershed and lies within portions of San Bernardino, Riverside, and Los Angeles counties. Exhibit 1 shows the location of the Chino Basin within the Upper Santa Ana River Watershed; refer to Chapter 3, Project Description, for the Exhibits included herein. The Chino Basin consists of an alluvial valley that is relatively flat from east to west, sloping from north to south at a one to two percent grade. Basin elevation ranges from about 2,000 feet adjacent to the San Gabriel foothills to about 500 feet near Prado Dam. As shown in Exhibit 2, the Chino Basin is bounded:

- on the north by the San Gabriel Mountains and the Cucamonga Basin;
- on the east by the Rialto-Colton Basin, Jurupa Hills, and the Pedley Hills;
- on the south by the La Sierra Hills and the Temescal Basin; and
- on the west by the Chino Hills, Puente Hills, and the Spadra, Pomona, and Claremont Basins.

The principal drainage course for the Santa Ana River watershed is the Santa Ana River. It flows 69 miles across the Santa Ana Watershed from its origin in the eastern San Bernardino Mountains to the Pacific Ocean. The Santa Ana River enters the Chino Basin at the Riverside Narrows and flows along the southern boundary to the Prado Flood Control Reservoir, where it is eventually discharged through the outlet at Prado Dam and flows the remainder of its course to the Pacific Ocean. The Basin is traversed by a series of ephemeral and perennial streams that include: San Antonio Creek, Chino Creek, Cucamonga Creek, Deer Creek, Day Creek, Etiwanda Creek and San Sevaine Creek. Please refer to Exhibit 2 for the location of drainages.

These creeks flow primarily north to south and carry significant natural flows only during, and for a short time after, the passage of Pacific storm fronts that typically occur from November through April. IEUA discharges year-round flows to Chino Creek and to Cucamonga Creek Channel from its Regional Plants. The actual volume of wastewater effluent discharges varies seasonally and is expected to be attenuated in the future by a combination of water conservation measures being implemented by water users and through diversion of flows for delivery as recycled water to future users that can utilize this source of water, including landscape irrigation, industrial operations, and recharge into the Chino Basin groundwater aquifer.

The Chino Basin is mapped within the USGS – Corona North, Cucamonga Peak, Devore, Fontana, Guasti, Mount Baldy, Ontario, Prado Dam, Riverside West and San Dimas Quadrangles, 7.5 Minute Series topographic maps. The center of the Basin is located near the intersection of Haven Avenue and Mission Boulevard at Longitude 34.038040N, and Latitude 117.575954W.

Both the California and Federal endangered species acts provide legislation to protect the habitats of listed species as well as the species itself. If a state or federally listed endangered species was determined to be present, the proposed project may be constrained to avoid or minimize effects to the species. Species specific mitigation measures would thus need to be agreed upon and implemented to the satisfaction of all jurisdictional agencies. These jurisdictional agencies may be some or all of the following: U.S. Fish and Wildlife Service (USFWS), CDFG, and/or COE.

The project area is comprised of a primarily urban setting in the northern portion of the Basin with agricultural and open space uses in the southern-most portion of the Basin. A large majority of the approximately 225,000 acres that comprises the Chino Basin has been previously developed or disturbed by human activity. Relatively speaking, very few pristine areas of undisturbed natural habitat remain. The following is a discussion of areas within the Chino Basin that have the largest areas of extant habitat communities or have the most significant biological resources:

The Prado Basin Reservoir area comprises 9,741 acres northwest of Corona and south of Chino. Approximately 4,000 acres of this area can be classified as riparian woodland vegetation, of which 2,000 to 2,500 acres is dense riparian habitat dominated by large stands of willow woodland. This is one of the largest remaining riparian woodland areas in southern California. This area supports a wide array of sensitive species, both floral and faunal. According to the Biological Resources section for the Chino Basin Groundwater storage Program Draft Environmental Impact Report for Metropolitan Water District of Southern California (MWDSC), a total of 311 species of vascular plants, belonging to 65 families, were identified in the Basin area. Three major vegetational communities occur in this area. First is riparian habitat which occurs in low lying sections of the Basin and along the Santa Ana River and streams running into the Basin.

The riparian habitat is dominated by extensive stands of black willow, and smaller stands of arroyo willow. Several stands of tall cottonwoods and a single stand of sycamore have been identified. The second habitat type is upland habitat characteristic of coastal sage scrub, plus grasses and exotic weeds. This upland area has been heavily impacted by agriculture and grazing activities. The third major vegetational type is the aquatic and semi-aquatic communities occurring in permanent streams and artificial duck ponds, and intermittently filled reservoirs and streams within the Basin. The wildlife in the riparian area includes a variety of amphibians, mammals, and birds. For an additional discussion of the biological resources identified in the area, please refer to MWDSC Chino Basin Groundwater Storage EIR's biological resource section.

The Santa Ana River and its tributaries within the Chino Basin are also significant areas for biological resources as they provide refugia and breeding grounds for neotropical migrant species as well as provide habitat linkages and movement corridors connecting various large blocks of relatively undisturbed habitat areas. The MWDSC Chino Basin EIR also reports that many of these tributary streams are proposed to be fully lined as part of flood control activities in the future.

Another significant area for biological resources that lies adjacent to the Chino Basin is Chino Hills State Park has approximately 13,000 acres of wild land situated in the hills north of Santa Ana Canyon. Although Chino Hill State Park contains large blocks of non-native grasslands, it also contains riparian habitat comprised of coast live oak and sycamore woodlands. Additionally, this park contains one of the largest remaining stands of Southern California black walnut. This park functions as an important area for connectivity to and movement between the park the boundary of the project area.

Based on the most recent field surveys of the area and desktop review for Peace II Subsequent Environmental Impact Report (SEIR, 2010), the proposed action area traverses vacant, public land designated as flood control, water conservation and open space. Patches of agricultural, industrial and commercial land uses are evident north of the Prado Dam inundation area (Prado Basin).

Prado Basin is dominated by flood plain riparian plant communities, with upland habitats primarily restricted to the perimeter of the Basin. The hydrological conditions in the project area promote the establishment of riparian vegetation. A freshwater marsh habitat component is also present in the project area because standing water is seasonally abundant in the Prado Basin upstream of the Prado Dam.

The present biological condition of Prado Basin was created by the construction of Prado Dam in 1941. Prado Dam was built where Chino Creek, Cucamonga Creek (also known as Mill Creek, south of Pine Avenue) and Temescal Wash have their confluence with the Santa Ana River. Due to a combination of the high groundwater table, storm flow accumulation held behind the Dam, sewage treatment plant effluent and irrigation runoff, a resultant perennial river flow exists that has created and sustains the extensive wetland habitat in the Basin. Presently, the riparian woodlands in the Basin comprise the largest single stand of this habitat in southern California. Prado Basin supports a myriad of habitat types, including but not exclusive to cottonwood/willow riparian forest, riparian scrubland, herbaceous riparian, freshwater ponds, freshwater marsh, riverine, sandy wash, fallow fields, agricultural land, ruderal, coastal sage scrub, and oak woodland.

The riparian habitat within the project area is in various seral stages and generally consists of tall, multilayered, open, canopy riparian forests. The dominant vegetative species within this riparian forest include: Eucalyptus, Fremont cottonwood (*Populus fremontii*), black cottonwood, (*P. tremuloides*) and several tree willows (*Salix spp*). Characteristic species, in addition to the eucalyptus and cottonwood, include black willow (*S. goodingii*) narrow-leved willow (*S. exigua*), arroyo willow (*S. lasiolepis*), red willow (*S. laevigata*), sandbar willow (*S. hindsiana*), mulefat (*Baccharis salicifolia*) Sycamore (*Platanus recemosa*) and elderberry (*Sambucus mexicana*).

In addition to the riparian community, there are also freshwater marsh, eucalyptus groves, coastal sage scrub, riverine, grassland, and ruderal communities found within the project area. Cattails and reeds are the dominant species within the freshwater marsh habitat.

4.3.2.1 Plant Communities

Additionally, a review of San Bernardino and Riverside County general plan documents listed the plant communities shown below as being present in the project area. The general characteristics of the plant communities described below were extracted from San Bernardino County's Biological Resources Report.

> ***Chaparral***
> *Several different chaparral subtypes occur in San Bernardino County. The most common subtypes in the valley region are southern mixed chaparral, chamise chaparral and scrub oak chaparral. These associations are located predominantly along the lower slopes of the mountains and in the interface zone between valley and mountain regions.*

Southern mixed chaparral is composed of broad-leaved sclerophyllous shrubs that grow to about 8-12 feet tall and form dense, often nearly impenetrable stands. The plants of this association are typically deep-rooted. There is usually little or no understory, except in openings; however, considerable leaf litter accumulates. This habitat occurs on dry, rocky often steep north-facing slopes with little soil. It may grade into Riversidean coastal sage scrub at lower elevations, but generally grown on moister and rockier sites. Characteristic shrub species include chamise, toyon and lemonadeberry.

Chamise chaparral is dominated by chamise, almost to the exclusion of all other plants. This habitat occurs on shallower, drier soils or at somewhat lower elevations than mixed chaparral. Chamise has adapted to the characteristic fire cycles of this habitat by stump sprouting. In mature stands, the shrubs are densely interwoven and there is very little herbaceous understory or leaf litter.

Scrub oak chaparral is a dense evergreen association that grown to twenty feet tall and is dominated by scrub oak. This habitat occurs on wetter sites than other chaparral associations, often at slightly higher elevations. These more favorable sites recover from fire more quickly than other chaparral subtypes and substantial leaf litter accumulates. Additional shrub species found in scrub oak chaparral include eastwood manzanita, toyon and mountain mahogany, poison oak and narrow leaf bedstraw.

Other chaparral associations may occur in the Valley region but are more predominant at higher elevations. Such associations include buck brush chaparral, bigpod ceanothus chaparral and interior live oak chaparral.

Chaparral habitats are suitable for burrows and soil nests of many mammal species. Another important feature of this habitat are rock outcrops, which are important for reptiles and as raptor perch sites. No sensitive species of San Bernardino county are directly dependent upon chaparral habitat. However, sensitive faunal species from adjacent coastal sage scrub habitat may utilize chaparral as a corridor or for foraging. These species may include Stephens' kangaroo rat, Los Angeles pocket mouse, and San Diego horned lizard.

The following was extracted from the California Native Plant Society (CNPS) database,

Coastal sage scrub

Coastal sage scrub in the valley region is classified as Riversidean sage scrub, the most xeric expression of coastal sage scrub south of Point Concepcion (Holland 1986). This habitat grows on steep slopes with everely drained soil and dominant species are relatively shallow-rooted shrubs, seldom over four feet tall.

Riversidean Alluvial Sage Scrub is a variation of Riversidean sage scrub which also exists in the valley region. This vegetation type is the dominant habitat of the Upper Santa Ana River floodplain and also occurs in the Cajon and Lytle washes (CNDDB, 2020)...

Coastal sage scrub habitat in Southern California is decreasing rapidly as a result of urbanization. Evidence of its decline is the growing number of declining plants often associated with it. In the valley region of San Bernardino county, three state and/or federally listed endangered species are known to occur in association with the coastal sage scrub: slender-horned spineflower (Centrostegia lepoceras), Santa Ana River woolly star (Eriastrum densifolium spp. sanctorum), and Nevin's barberry (Berberis nevinii). Additionally, Pringles *monardella is federally listed as a Category I species, while Payson's jewelflower and California bedstraw are category 2 species.*

San Bernardino kangaroo rat, a federally listed endangered species; and Stephens' kangaroo rat, a state-listed threatened species and federally listed endangered species are also known to have their habitat associated with this community type in the Valley area. Los Angeles pocket mouse is federally listed as a category 2 species and a species of special concern by the state. The Los Angeles pocket mouse has been found in San Bernardino county near the Cajon Wash, north of Etiwanda and San Bernardino and in Reche Canyon...The Valley region of San Bernardino county represents the northern limit of the range of the whiptail and coastal California gnatcatcher, a federally listed threatened species. Currently the U.S. Fish and Wildlife Service has proposed critical habitat for this species.

Deciduous woodlands
California walnut woodland is a rather specialized woodland habitat restricted to the Chino Hills and Etiwanda area within the Valley region. This woodland, which occurs among rocky outcrops integrating with scrub habitat or on more mesic sites integrating with canyon live oak woodland, is dominated by California walnut; associated species include canyon live oak, Engelman oak, sugar bush, and squaw bush. California walnut woodland is considered a sensitive habitat due to its small acreage and limited distribution in the county; no sensitive floral species are solely dependent on this woodland habitat for their life cycle, however. No federal or state sensitivity listing exists for the live oak walnut or for any other species associated with California walnut woodland. Animals associates with California walnut woodland are similar to the species that would utilize oak woodland. These include Anna's hummingbird, acorn woodpecker, Nuttall's woodpecker, deer mouse, California ground squirrel, striped skunk, and coyote. No sensitive animals as listed by the USFWS or CDFG are dependent on California walnut woodland within the valley region in San Bernardino County.

Grasslands
The disturbed grasslands of the valley region of San Bernardino county are a heterogeneous complex that may be associated with shrubs or trees on land that has been disturbed or altered by development or fire. Non-native weedy vegetation is common in this habitat and includes slender wild oats, foxtail fescue, ripgutgrass, short-podmustard, red-stem filaree, and pin-clover. On sensitive plant species may occur in the grassland areas of the northern Valley area of San Bernardino County, Orcutt's brodiaea. This species, which is seriously threatened by development, may be found in valley/foothill grasslands, cismontane woodlands and vernal pool habitats. Birds or prey utilize grassland areas for foraging. Locally breeding raptor species include black-shouldered kite, red-tailed hawk, red-shouldered hawk, great horned owl, and barn owl, Other faunal associates include house mouse, southern grasshopper mouse, and gopher snake. No sensitive animal species are expected to utilize the grassland areas of the valley region of San Bernardino County.

Wetlands
Wetland communities are areas of land which are either permanently or seasonally wet and support vegetation that is specifically adapted for saturated soil conditions. These areas include riparian areas and marshes, where moisture is at or near the surface, and often include intermittent drainages. In southern California, wetland habitats are declining and are considered sensitive. Wetlands are further subject to state and federal regulations that include the federal Clean water Act (Section 404) and the CDFG Streambed Alteration

Agreement (Section 1600 of the Fish and Game Code). A number of stream channels flow through the valley region of San Bernardino County including Cucamonga Creek, Cajon and Lytle creek washes, and Santa Ana River. Where water is present near the surface in stream channels, a riparian woodland community can be maintained. In stream channels with intermittent surface or groundwater availability, a riparian scrub community may also develop. Both of these communities exist in the valley region. Dominant woodland tree species include Fremont cottonwood, arroyo willow and black willow with western sycamore on the upper terraces. Common shrubs include mulefat, California mugwort, poison oak and the coyote bush. A well-developed stand of riparian woodland occurs in the Prado Basin of San Bernardino County and extends into Riverside county. Remnant riparian woodlands also occur in less frequently flooded areas such as the Santa Ana Wash area.

A freshwater marsh is located north of Etiwanda in the Day Canyon wash area. Freshwater marsh also occurs in the Prado Basin and may occur in the other drainages of the valley region, wherever moisture is at or near the surface for a long duration during the growing season. This habitat is usually dominated by perennial emergent species 4 to 7 feet tall. Stands of bulrushes or cattails often characterize this habitat. Also, large stands of the non-native pest plant giant reed grass (Arundo) occur along much of the basin's riparian areas. This giant reed grass not only takes over native riparian communities, but it also uses a tremendous amount of water.

These Riparian resources serve as important habitat, as water sources, and as movement corridors for wildlife. This habitat type also supports numerous sensitive animal species including least Bell's vireo, a state and federally listed endangered species; southwestern willow flycatcher, a state and federally listed endangered species; bald eagle, a state and federally endangered species; western yellow-billed cuckoo, a state listed threatened species; long eared own, a species of special concern and the California black rail, a state listed threatened species. The cuckoo and vireo occur in the dense riparian habitat of the Prado Basin in Riverside county but apparently have been extirpated from the valley region of San Bernardino County. The black rail, dependent on marshes, was recorded long ago at Chino but is not known to occur currently in San Bernardino County. (San Bernardino County Plan Biological Background Report, 1987)

4.3.2.2 Physical Conditions

The local climate is characterized by hot summers, mild winters and rainfall, which occurs almost entirely in the winter and early spring months. The average annual rainfall is about 19 inches. The climate is somewhat affected by the moderating effects of the Pacific Ocean. Average temperatures range from a minimum of 39 degrees Fahrenheit in January to an average of 91 degrees Fahrenheit in July. Winds occur from all directions, and onshore winds from the west/southwest occur during the day. At night, wind patterns reverse with an offshore flow generally coming from the east/northeast.

The five Management Zones are bordered by various waterways, such as the Santa Ana River along the southeast alignment of Management Zone 5, Chino Creek coursing northwest to southeast along the western border of Management Zone 1 and having its confluence with the Santa Ana River in Prado Basin in the southern portions of MZ's 1-5, and San Antonio Creek, which passes through MZ's 1 and 2.

Mt. Baldy to the north of the project area channels alluvial and perennial flows through several smaller waterways, which fill reservoirs (Puddingstone Reservoir in the northeast of MZ 1, Live Oak Reservoir north of MZ 1) and continue their flows into several of the creeks running north to south through the project alignment.

4.3.2.3 Topography and Soils

The majority of the program area is characterized by flat topography through the basin, bordered by hilly to mountainous terrain. The elevation ranges from approximately 500 feet above mean sea level (amsl) at the extreme southern portion of the Basin to 1,200 feet amsl along the foothills leading to the adjacent mountains. General soil maps (NRCS, Web Soil Survey, January 2020) identify numerous soil associations (distinctive patterns of soils in defined proportions) in the program area. An overview of topography and soil is presented in the following section. Once specific program elements are designed or proposed a more specific soil map would be prepared for those specific activities.

Table 4.3-1
SOIL TYPES IN THE PROGRAM AREA

Management Zone	Map Unit Name	Map Unit Name
1	Urban land-Monserate-Exeter-Arlington (moderately well to well drained, slow to rapid runoff, slow to moderate permeability, 0 to 9% slope)	Ramona-Hanford-Greenfield-Gorgonio (well- to excessively drained, low to medium runoff, moderately slow to rapid permeability, 0-30% slope)
	Soper-Fontana-Calleguas-Balcom-Anaheim (well-drained, low to high runoff, slow to moderate permeability, 5 to 75% slope)	
2	Urban land-Monserate-Exeter-Arlington (moderately well to well drained, slow to rapid runoff, slow to moderate permeability, 0 to 9% slope)	Ramona-Hanford-Greenfield-Gorgonio (well- to excessively drained, low to medium runoff, moderately slow to rapid permeability, 0-30% slope)
	Urban land-Tujunga-Soboba-Hanford (well to somewhat excessively drained, negligible to low runoff, moderate to rapid permeability, 0-15% slope)	
3	Urban land-Monserate-Exeter-Arlington (moderately well to well drained, slow to rapid runoff, slow to moderate permeability, 0 to 9% slope)	Sesame-Rock outcrop-Cieneba (well to excessively drained, low to very rapid runoff, moderate to slow permeability, 0-85% slope)
	Urban land-Tujunga-Soboba-Hanford (well to somewhat excessively drained, negligible to low runoff, moderate to rapid permeability, 0-15% slope)	
4	Sesame-Rock outcrop-Cieneba (well to excessively drained, low to very rapid runoff, moderate to slow permeability, 0-85% slope)	Urban land-Tujunga-Soboba-Hanford (well to somewhat excessively drained, negligible to low runoff, moderate to rapid permeability, 0-15% slope)
5	Urban land-Monserate-Exeter-Arlington (moderately well to well drained, slow to rapid runoff, slow to moderate permeability, 0 to 9% slope)	Urban land-Tujunga-Soboba-Hanford (well to somewhat excessively drained, negligible to low runoff, moderate to rapid permeability, 0-15% slope)

The preceding list summarizes the general soil types identified in the program area, which consists of disturbed urban land, alluvial, sedimentary sources, and distinct soil series along the more rocky terrain. Most of the soils in the inventory area formed from alluvial, sedimentary, and meta-sedimentary sources and have been formed in concert with the complex geologic history of the area. Many areas to the south of the program area have been urbanized and/or altered to produce crops.

4.3.2.4 Biological and Physical Conditions of the Study Areas

This section describes the existing biological and physical conditions of the Study Areas. Areas with natural vegetation and wetlands are most prevalent in the lower 20 percent of the management zones, in particular Chino Creek to the southwest of and within MZ 1 and the Santa Ana River to the southeast and within MZ 1 and MZ 5. Native plants are uncommon in the program area and are generally limited to the wetland and streambed areas in the program area. Most of the land area in the five Management Zones is developed. The lack of native vegetation throughout the majority of the program area is a result of a history of industrial, commercial, agricultural and residential housing development within the program area and associated maintenance and continued construction within the program area.

4.3.2.5 Regional Habitat and Land Use in the Assessment Areas

This section describes the general biological conditions in and around the assessment areas, with particular emphasis on the wildlife habitats. Most of the discussion focuses specifically on the habitats adjacent to and within the program area, which is synonymous with the area slated for future program activities. The rationale for this approach is habitat conditions are particularly relevant to wildlife presence and use.

The assessment areas are located in the Southwestern California subregion (SW) of the California Floristic Province (i.e., a geographic area, made of six regions, defined by the continuity of its vegetational, topographic, geologic, and climatic features) of this subregion (Hickman 1993). Like other Mediterranean-type ecosystems, the California Floristic Province is distinguished more by the endemism of its plants than its animals. Of nearly 3,500 species of vascular plants in the hotspot, more than 2,120 (61 percent) are found nowhere else in the world. Around 52 plant genera are also endemic. The high levels of plant species endemism are due to its varied topography, climate zones, geology and soils.

Overall, the Study Areas are highly disturbed and fragmented because of historic man-made changes to the landscape, including urban, agricultural, industrial, railroad, and highways/road development. In a few areas, native vegetation and quality wildlife habitat remain relatively undisturbed. The majority of land in the Study Areas is an active urban area with mixed residential, commercial, and industrial use. Urban areas are the second greatest land use, including large cities such as Chino Hills, Chino, Montclair, Ontario, Upland, Rancho Cucamonga, Fontana, Rialto, Eastvale, Norco, and Jurupa Valley. In these areas native vegetation is absent or highly disturbed, and the more typical vegetation consists of a variety of planted landscape plants and other nonnative or ornamental vegetation.

4.3.2.6 General Wildlife Resources in the Project Area

The riparian forest in the Prado Basin is noted for its very high bird species diversity and abundance. Neotropical migrants depend on the deciduous trees and shrubs for foraging during migration. The mature trees provide numerous cavities for cavity-dependent wildlife and the tall trees are used by nesting raptors. The emergent vegetation rooted at the water's edge provides escape cover, shade and food for fish.

The wildlife resources in Prado Basin are important due, in part, to their high diversity and the large numbers of certain wetland species that occur there. The extensive and continuous riparian woodland, unique for southern California, supports several rare and declining species, particularly birds. A robust raptor population occurs within the project area. The raptors have a wealth of resources to draw on for foraging and nesting. They use the tall eucalyptus for nesting, roosting and perching. There are records of eleven raptor species breeding successfully in Prado Basin, including the white-tailed kite (*Elanus leucurus*), Cooper's hawk, golden eagle (Aquila chrysaetos), western screech-owl (*Otus asio*), and long-eared owl (*Asio otus*). A moderate number of raptor species from other regions winter in Prado Basin along with the resident raptors. Two of the rarer wintering raptor species include the peregrine falcon (*Falco peregrinus*) and merlin (*Falco columbarius*).

The double-crested cormorant (*Phalacrocorax auritus*), great blue heron (*Ardea herodias*), and blackcrowned night-heron (*Nycticorax nycticorax*) are conspicuous breeders among the larger water birds. The tree swallow (*Tachycinera bicolor*) is abundant locally, especially in the vicinity of dead trees with cavities where it nests. The red-winged blackbird (*Agelaius phoeniceus*) and marsh wren (*Cistothorus palustris*) are locally abundant nesters, as is piedbilled grebe (*Podilymbus podiceps*), ruddy duck (*Oxyura jamaicensis*), and American coot (*Fulica americana*). The mallard (*Anas platyrhynchos*) and cinnamon teal (*Anas cyanoptera*) are more widely scattered. Shorebirds known to nest in the Basin include: the killdeer (*Charadrius voci/erus*), American avocet (*Recurvirostra americana*), black-necked stilt (*Himantopus mexicanus*), and spotted sandpiper (*Actitis macularia*). Marsh-nesting birds include: the American bittern (Botaurus lentiginosus), Virginia rail (*Rallus limicola*), common moorhen (*Gallinula chloropus*), common yellowthroat, song sparrow, and tricolored blackbird (*Agelaius tricolor*).

Species that nest in the eucalyptus groves include: the Anna's hummingbird (*Calypte anna*), northern flicker (*Colaples auratus*), Cassin's kingbird (*Tyrannus vociferans*), American crow, European starling, Bullock's oriole (*Icterus bullockii*), and house finch. Nests of the red-tailed hawk (*Buteo jamaicensis*) and red-shouldered hawk are regularly found in the eucalyptus trees as well, probably because they are often the tallest trees available. Oriole and kingbird nests are locally concentrated in eucalyptus trees. The commonly encountered winter visitors in the riparian forests are the ruby-crowned kinglet (*Regulus calendula*), white-crowned sparrow (*Zonotrichia leucophrys*), American pipit (*Anthus rubescens*) and savannah sparrow (*Passerculus sandwichensis*).

Winter concentrations of waterfowl in the Prado Basin are at least as large as those on any of the southern California coastal lagoons, and the Basin may hold the largest wintering populations of some species. The wintering waterfowl resources in the Basin are vast and are exploited by several waterfowl hunt club operators. Sixteen species of waterfowl have been found in the Basin, many numbering in the thousands. The most abundant are green-winged teal (*Anas clecca*), mallard, cinnamon teal, Northern shoveler (*Anas clypeata*), American wigeon (*Anas americana*), ring-necked duck (*Aythya collaris*), and ruddy duck. Twenty-three species of mammals including three non-native species have been observed in the Prado Basin. Six species of mammals found in the Basin are listed in the California Hunting Regulations with seasons and limits set by the State Fish and Game Commission.

The mule deer is a big game animal, the Audubon cottontail and black-tailed jackrabbit (*Lepus califomicus*) are resident small game animals, the gray fox (*Urocyon cinereoargenteus*) and raccoon are fur-bearing mammals, and the bobcat is a regulated non-game mammal.

There are seven amphibian species known to occur in the Prado Basin and surrounding areas (Glaser 1970, Robertson and Shipman 1974, and Zembal et al. 1985). The bullfrog (*Rana catesbeiana*), and African clawed frog (*Xenopus laevis*) are two invasive, non-native species commonly observed in the basin. There are 13 reptile species documented in the basin. The western fence lizard is the most frequently encountered reptile within the Basin. The side-blotched lizard is concentrated in upland areas. The western whiptail (*Cnemidophorus tigris*) is also found primarily in upland scrubland habitats around the perimeter of the Basin. The western skink (*Eumeces skiltonianus*) inhabits remnant scrublands. The gopher snake (*Piruophis melanoleucus*) is the snake most frequently observed in the Basin and is found in both uplands and in drier riparian habitats.

At least 15 species of fish have been found in the Prado Basin within the Santa Ana River. Most of these occur in the affected area, at least seasonally. Two, the SASU and arroyo chub, are native to southern California; the rest are non-native introductions. According to Cam Swift, the most abundant species in the Basin are the flathead minnow and mosquitofish. These two, along with the carp (*Cyprinus carpio*), comprise about 95 percent of all fish species in the Basin (Swift unpubl. data).

Common wildlife in the project area include coyote (*Canis latrans*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), rattlesnake (Crotalus sp), western fence lizard (*Sceloporus occidentalis*), desert wood rat (*Neotoma lepida*), and deer mouse (*Peromyscus maniculatus*).

4.3.3 Regional Special Status Species and Habitats of Concern

Special status species are plants or animals that are legally protected under the federal ESA, the California ESA, or other regulations, as well as species considered sufficiently rare by the scientific community to qualify for such listing. Special-status species include the following:

- Species listed or proposed for listing as threatened or endangered under the federal ESA (50 CFR 17.12 [listed plants]); 50 CFR 17.11 (listed animals); and various notices in the *Federal Register* (proposed species).
- Species that are candidates for possible future listing as threatened or endangered under the federal ESA (76 Fed. Reg. 66370, October 26, 2011).
- Species listed or proposed for listing by the State of California as threatened or endangered under the California ESA (14 California Code of Regulations [C.C.R.] 670.5).
- Species that meet the definitions of "rare" or "endangered" under the California Environmental Quality Act (CEQA Guidelines Sections 15380 and 15125).
- Plants presumed by the California Native Plant Society (CNPS) to be “extinct in California” (Lists 1A, CNPS 2020).
- Plants considered by the CNPS to be “rare, threatened, or endangered in California” (Lists 1B and 2, CNPS 2020).
- Plants listed by CNPS as plants about which more information is needed to determine their status (List 3, CNPS 2020), and which may be included as special-status species on the basis of local significance or recent biological information.
- Plants listed by CNPS as plants of limited distribution or infrequent throughout a broader area in California (List 4, CNPS 2020); these plants are not “rare” from a statewide

perspective but are uncommon enough that they are recommended for inclusion in environmental documents.

- Plant species listed as rare under the California Native Plant Protection Act (California Fish and Game Code 1900, et seq.).
- Animal species of special concern to the CDFW (CDFW 2019).
- Bird species of conservation concern as identified by USFWS in *Birds of Conservation Concern 2008* (USFWS 2008).
- Animals that are fully protected in California (California Fish and Game Code Sections 3511 [birds], 4,700 [mammals], 5050 [amphibians and reptiles], and 5515 [fish]) (CDFW 2011).

The following table identifies the habitat types and land uses identified within the Study Areas of the proposed project.

Table 4.3-2
PROJECT AREA WILDLIFE HABITAT TYPES, LAND USES, AND TYPICAL VEGETATION

Wildlife Habitat Type/ Land Use Type	Typical Vegetation
Tree-Dominated Habitats	
Montane Hardwood (MHW)	Jeffrey pine, ponderosa pine, sugar pine, incense-cedar, California white fir, bigcone Douglas-fir, California black oak, and Coulter pine. At lower elevations, associates are white alder, coast live oak, bigleaf maple, Californialaurel, bigcone Douglas-fir, and occasionally valley oak, foothill pine, and blue oak (Cheatham and Haller 1975, McDonald and Littrell 1976).
Desert Riparian (DR)	Tamarisk, velvet ash, mesquite, screwbean mesquite, Fremont cottonwood, and willows such as Gooding, Hinds, and arroyo (Bradley and Deacon 1967, Cheatham and Haller 1975, Küchler 1977, Paysen et al. 1980, Parker and Matyas 1981). The subcanopy includes smaller individuals of the canopy species as well as quailbush, Mojave seablight, desert lavender, seep willow, and arrowweed (Bradley and Deacon 1967, Küchler 1977. Paysen et al. 1980, Parker and Matyas 1981).
Valley Foothill Riparian (VRI)	Cottonwood, California sycamore and valley oak. Subcanopy trees are white alder, boxelder and Oregon ash. Typical understory shrub layer plants include wild grape, wild rose, California blackberry, blue elderberry, poison oak, buttonbrush, and willows. The herbaceous layer consists of sedges, rushes, grasses, miner's lettuce, Douglas sagewort, poison-hemlock, and hoary nettle. (CDFW, 2020)
Shrub/Herbaceous-Dominated Habitats	
Riversidean Alluvial Fan Sage Scrub	Predominantly of drought-deciduous soft-leaved shrubs, but with significant cover of larger perennial species typically found in chaparral (Kirkpatrick and Hutchinson, 1977). Scalebroom (*Lepidospartum squamatum*) generally is regarded as an indicator of Riversidean alluvial scrub (Smith, 1980; Hanes, et al., 1989). In addition to scalebroom, alluvial scrub typically is composed of white sage (*Salvia apiana*), redberry (*Rhamnus crocea*), California buckwheat, Spanish bayonet, California croton (*Croton californicus*), cholla (*Opuntia spp*.), tarragon (*Artemisia dracunculus*), yerba santa (*Eriodictyon spp*.), mule fat, and mountain-mahogany (Hanes, et al., 1989; Smith, 1980). Annual species composition has not been studied but is probably similar to that found in understories of neighboring shrubland vegetation. Two sensitive annual species are endemic to alluvial scrub vegetation in the proposed Plan Area: slender-horned spineflower (*Dodecahema leptocerus*) and Santa Ana River woollystar (*Eriastrum densifolium ssp. sanctorum*). (Western Riverside County MSHCP, Chapter 3)

Wildlife Habitat Type/ Land Use Type	Typical Vegetation
Mixed Chaparral (MCh)	Scrub oak, chaparral oak, and several species of ceanothus and manzanita. Individual sites may support pure stands of these shrubs or diverse mixtures of several species. Commonly associated shrubs include chamise, birchleaf mountain mahogany, silk-tassel, toyon, yerba-santa, California buckeye, poison-oak, sumac, California buckthorn, hollyleaf cherry, Montana chaparral-pea, and California fremontia. Some of these species may be locally dominant. Leather oak and interior silktassel are widely distributed on cismontane serpentine soils, and chamise and toyon may be abundant on these soils. Shrubs such as Jepson, coyote, and dwarf ceanothus and serpentine manzanita are local serpentine endemics (Cheatham and Haller 1975, Thorne 1976, Hanes 1977).
Aquatic Habitats	
Coastal and Valley Freshwater Marsh	Located in Day Canyon wash area and Prado Basin; cattail and bulrush dominated wetlands. Also present is non-native invasive giant reed grass (Arundo), which also occur along the riparian habitat outside of marshland.
Riverine and riparian	Santa Ana River, Cucamonga Creek, Cajon Creek, Lytle Creek that are tributary to the Chino and Prado Basins; this riparian habitat is dominated by Fremont cottonwood, arroyo willow, black willow and western sycamore. Common shrubs include mulefat, California mugwort, poison oak and coyote bush.
Disturbed Habitats	
RS, RM, SD-RES	Residential
IC, IR	Community industrial and regional industrial
SD-COM, COM	Special development and commercial
FW	Floodway resource management zone
RL	Rural living
OS	Open Space
KC/SP	Kaiser Commerce Center Specific Plan
Non-vegetated Habitats	
Barren (BAR)	Unvegetated, rock, gravel, soil
Utilities ROW for water distribution	Cement-lined and herbaceous vegetation channels, pipes, culverts, pump stations, reservoirs.
HCP/Preserve Lands	
Western Riverside County Multiple-Species Habitat Conservation Plan (MSHCP) June 22, 2004	The MSHCP encompasses 1.26 million acres of land in unincorporated Riverside County west of the San Jacinto Mountains and creates conservation land for 153,000 acres of land. Focal species covered include least Bells vireo, southwestern willow flycatcher, wester yellow-billed cuckoo, Quino checkerspot butterfly, and fairy shrimp. Riparian, riverine, sage scrub and other upland vegetative communities are protected.
Designated Critical Habitat within Proximity to Proposed Project	
Spreading navarretia	19 miles southeast of the Study Area
Arroyo toad	6 miles northeast of Study Area and 9 miles south of the Study Area
Yellow-billed cuckoo	Directly overlapping with all MZ’s in the south of the Study Area
Southern mountain yellow-legged frog	3 miles north of the Study Area
Thread-leaved brodiaea	7 miles northwest and 19 miles southeast of the Study Area
San Bernardino Merriam’s kangaroo rat	Directly overlapping with MZ-2 in the north and within 1 mile northeast to 20 miles southeast of the Study Area
Least Bell’s vireo	Directly overlapping all MZ’s in the southern portion of the Study Area

Wildlife Habitat Type/ Land Use Type	Typical Vegetation
Coastal California gnatcatcher	Directly overlapping the eastern portion of MZ-3 and within 1 mile of all MZ's within the Study Area
Southwestern willow flycatcher	Directly overlapping pockets in the southern portions of MZ-1, 2, 3, and 5 and within 1 mile of all MZ's in the Study Area
Santa Ana sucker	Directly overlapping the full southern extent of MZ-5 and within 2 miles of remaining MZ's
Braunton's milk-vetch	3 miles southwest of the 5 MZ's
Conservation Banks	
Cajon Creek Habitat Conservation Management Area Contact: Sheri Ortega Property Manager Vulcan Materials Company, Western Division 500 N. Brand Blvd. Suite 500 Glendale, CA 91203 (Division Office) 16013 Foothill Blvd., Irwindale, CA 91702 (626) 633-4236 (Office) (323) 637-2569 (Mobile) ortegas@vmcmail.com	24 T&E species and their associated habitats are covered, including: Riversidian alluvial fan sage scrub; San Bernardino kangaroo rat; Santa Ana woolly star; Slender-horned spineflower. Credits: Riversidian aleuvial fan sage scrub
Soquel Canyon Mitigation Bank Contact: Mitigation Bank Manager (877) 445-8699 bankmanager@landveritas.com	Ephemeral; Intermittent and Permanent stream/riparian; Coastal sage scrub; Chaparral; Native grassland; Walnut woodland; Oak woodland; Mulefat scrub
Chiquita Canyon Conservation Bank **Contact:** Foothill / Eastern Transportation Corridor Agency 201 E. Sandpointe, Ste 200 P.O. Box 28870 Santa Ana, CA 92799-8870 Attn: William Woollett, Jr. Chief Executive Officer	Coastal sage scrub; Riversidian sage scrub; California gnatcatcher
Black Mountain Conservation Bank Contact: WildDesert EM Holdings, LLC 3301 Industrial Avenue Rocklin, CA 95765 (916) 435-3555 Fax: (916) 435-3556	Desert tortoise; Mohave ground squirrel; American badger; Desert kit fox; Loggerhead shrike; LeConte's thrasher; stream

4.3.3.1 Special Status Plant and Animal Species Potentially Occurring Along or Within the Project Assessment Areas

4.3.3.1.1 Special Status Plant Species with Potential for Occurrence in the Project Area

Santa Ana River woollystar
Santa Ana River woollystar is a low shrubby perennial which can grow to one meter (3.3 feet) tall, with gray-green stems and leaves. This species blooms from June to August and produces bright

blue flowers that are up to 1.4 inches long that occur in flower heads with about 20 blossoms each. There are three primary pollinators: long-tongued digger bee, giant flower-loving fly and hummingbirds. This species is associated with early- to moderate- successional alluvial scrub, and thus requires periodic flooding and silting for the creation of new habitats and colonization. The Santa Ana River woollystar is found only within open washes and early-successional alluvial fan scrub on open slopes above main watercourses on fluvial deposits (terraces) where flooding and scouring occur at a frequency that allows the persistence of open shrublands. Suitable habitat is comprised of a patchy distribution of gravelly soils, sandy soils, rock mounds and boulder fields (Zembal and Kramer 1984; Zembal and Kramer 1985; U.S. Fish and Wildlife Service 1986). The Santa Ana River woolly-star occurs along the Santa Ana River and Lytle and Cajon Creek flood plains from the base of the San Bernardino Mountains in San Bernardino County southwest along the Santa Ana River through Riverside County into the Santa Ana Canyon of northeastern Orange County from about 150 to 580 meters (Munz 1974; Patterson 1993; Roberts 1998; Zembal and Kramer 1985; Patterson and Tanowitz 1989).

White rabbit-tobacco (Pseudognaphalium leucocephalum)
White rabbit-tobacco is a biennial or short-lived perennial, 30–60 cm; taprooted. Stems are densely and persistently white-tomentose, usually with stipitate-glandular hairs protruding through tomentum. Leaf blades (crowded, internodes mostly 1–3, sometimes to 10 mm) are linear-lanceolate, 3–7 cm × 1–5(–6) mm, bases subclasping, not decurrent, margins strongly revolute, faces bicolor, abaxial densely white-tomentose, adaxial green, densely stipitate-glandular. Heads grow in corymbiform arrays and involucres broadly campanulate, 5–6 mm. Phyllaries are in 5–7 series, are bright white (opaque, dull) and oblong to oblong-ovate, glabrous. Pistillate are in florets of 66–85 and bisexual florets are (6–14, California) are 29–44. Cypselae are ridged and smooth, 2n = 28. Flowering season is Jul–Aug and Nov–Dec. White rabbit-tobacco grow on/near sandy or gravelly slopes, stream bottoms, arroyos, areas of oak-sycamore, oak-pine, to pine woodlands, commonly in riparian vegetation; 50–2100 m; Ariz., Calif., N.Mex.; Mexico (Baja California, Baja California Sur, Chihuahua, Durango, Sinaloa, Sonora).

4.3.3.1.2 Special-Status Wildlife Species with Potential for Occurrence in the Project Area

Southwestern pond turtle
These turtles are 3.5 - 8.5 inches in shell length (Stebbins 2003). It is a small to medium-sized drab dark brown, olive-brown, or blackish turtle with a low unkeeled carapace and usually with a pattern of lines or spots radiating from the centers of the scutes. The plastron lacks hinges, and has 6 pairs of shields which can be cream or yellowish in color with large dark brown markings, or unmarked. The legs have black speckling and may show cream to yellowish coloring. The head usually has a black network or spots may show cream to yellowish coloring. Males usually have a light throat with no markings, a low-domed carapace, and a concave plastron. Females usually have a throat with dark markings, a high-domed carapace, and a flat or convex plastron which tends to be more heavily patterned than the male's. They are diurnal and thoroughly aquatic. This turtle is often seen basking above the water, but will quickly slide into the water when it feels threatened. Southwestern pond turtle is active from around February to November, hibernates underwater, often in the muddy bottom of a pool, and estivates during summer droughts by burying itself in soft bottom mud.

They eat aquatic plants, invertebrates, worms, frog and salamander eggs and larvae, crayfish, carrion, and occasionally frogs and fish. Pond turtles mate in April and May. They are found from the San Francisco Bay south, along the coast ranges into northern Baja California. Isolated populations occur along the Mojave River at Camp Cody and Afton Canyon from sea level to over

5,900 ft in elevation. This turtle is found in ponds, lakes, rivers, streams, creeks, marshes, and irrigation ditches, with abundant vegetation, and either rocky or muddy bottoms, in woodland, forest, and grassland. In streams, it prefers pools to shallower areas. Logs, rocks, cattail mats, and exposed banks are required for basking.

Tricolored blackbird

The CDFG maintains a biodiversity database for tricolors. This database includes records for breeding and non-breeding tricolors during the breeding season and a winter distribution database. The recent breeding records were compiled by U.C. Davis and are included in annual reports to USFWS and CDFG. Since 1980, breeding has occurred in 46 California counties (Beedy and Hamilton 1999). With the exception of a few peripheral sites, the geographic distribution has not declined perceptively. Unlike most species when tricolors settle at high densities, as in flooded willows, territories may be vertically stacked. Arrival date on breeding grounds is mid-March through mid-July. Tricolored Blackbirds are at as high a risk as any of the narrowly endemic North American bird species and are at far greater risk than Swainson's Hawks, Burrowing Owls and other relatively widely distributed California species. But because they are a flocking species, and are in some places abundant, they do not command management attention.

Burrowing Owl

Burrowing owl is a small ground-dwelling Owl with a round head and no ear tufts. They have white eyebrows, yellow eyes, and long legs. The Owl is sandy colored on the head, back, and upperparts of the wings and white-to-cream with barring on the breast and belly and a prominent white chin stripe. They have a rounded head, and yellow eyes with white eyebrows. The young are brown on the head, back, and wings with a white belly and chest. They molt into an adult-like plumage during their first summer. Burrowing Owls are comparatively easy to see because they are often active in daylight and are surprisingly bold and approachable.

The burrowing owl occurs in shortgrass prairies, grasslands, lowland scrub, agricultural lands particularly rangelands), prairies, coastal dunes, desert floors, and some artificial, open areas as a year-long resident (Haug, et al. 1993). They require large open expanses of sparsely vegetated areas on gently rolling or level terrain with an abundance of active small mammal burrows. As a critical habitat feature need, they require the use of rodent or other burrows for roosting and nesting cover. They may also dig their own burrow in soft, friable soil (as found in Florida) and may also use pipes, culverts, and nest boxes where burrows are scarce (Robertson 1929). The mammal burrows are modified and enlarged. One burrow is typically selected for use as the nest, however, satellite burrows are usually found within the immediate vicinity of the nest burrow within the defended territory of the owl.

Yellow-billed cuckoo

The yellow-billed cuckoo is dependent on the combination of a dense willow understory for nesting, a cottonwood overstory for foraging and large patches of habitat in excess of 20 ha. (Laymon and Halterman 1991). It is also not known to utilize non-native vegetation in the majority of its range (Hunter et al. 1984). It is a medium sized bird. Its profile is long and slim. Its legs are short and bluish-gray. Its long tail is gray-brown above and black below with three striking pairs of large white dots visible in flight. Its body is brown above with white under parts. The undersides of its pointed wings are rufous. Adult birds have a long curved bill which is blue-black above and yellow at the base of the mandibles. Juveniles have a completely blue-black bill. While they have been known to take beetles, cicadas, bugs, wasps, flies, katydids, dragonflies, damselflies, praying mantids, lacewings, mosquito hawks, cankerworms, fall webworms (Platyprepia virginalis), and even tree frogs (Beal 1898, Green 1978, Laymon 1980, Ryser 1985, Dillinger

1989), more than three fourths of the yellow-billed cuckoo diet is made up of grasshoppers and caterpillars (Beal 1898). The yellow-billed cuckoo is an "incipient brood parasite," its eggs have been found in the nests of black-billed cuckoos, American robins, black-throated sparrows, mourning doves, house finches and red-winged blackbirds (Ryser 1985).

Black-billed cuckoos have also been known to occasionally parasitize yellow-billed cuckoos. Though they will occupy a variety of marginal habitats, particularly at the edges of their range, yellow-billed cuckoos in the West are overwhelmingly associated with relatively expansive stands of mature cottonwood willow forests. Canopy height ranged from 5-25 m, canopy cover from 20-90%, and nderstory cover from 30-90%. Willows and open water are required and the habitat will vary from dense willow-cottonwood forests to marshy bottomlands with scattered willow thickets. The cuckoo was once common in riparian habitat throughout the western United States. In California the yellow-billed cuckoo has declined from a "fairly common breeding species" throughout most of the state to a current population of less than 50 pairs (Gaines and Laymon 1984; Laymon and Halterman 1991). In 1971 it was listed by the California Department of Fish and Game as Rare. By 1977 it had become "one of the rarest birds" in the state. A 1977 survey of historical sites and suitable habitat at six widely scattered rivers turned up 54 birds in the Sacramento Valley (Tehama, Putte, Glenn, Colusa, and Sutter counties), 9 on the South Fork of the Kern River near Weldon, 3 along the Santa Ana River, Riverside County, 4 in Owens Valley, Inyo County, 6 on the Armargosa River south of Tecopa, Inyo and San Bernardino County, and 65 on both sides of the Colorado River from the Nevada state line to the Mexican border (Gaines 1977).

Arroyo Chub
The Arroyo chub is a cyprinid fish found only in the coastal streams of southern California, United States. The shape of the arroyo chub is somewhat chunky, with a deep body and thick caudal peduncle. The eyes are larger than average for cyprinids. Coloration ranges from silver to gray to olive green above, shading to white below, usually with a dull gray band along each side. This is a small fish, with most adults in the 7-10 cm length range, and a maximum of 12 cm. Omnivorous, their diet includes algae, insects, and crustaceans. Arroyo chub habitat is primarily the warm streams of the Los Angeles Plain, which are typically muddy torrents during the winter, and clear quiet brooks in the summer, possibly drying up in places. They are found both in slow-moving and fast-moving sections, but generally deeper than 40 cm. They are native to Los Angeles, Santa Margarita, San Gabriel, San Luis Rey, and Santa Ana Rivers, as well as to Malibu and San Juan Creeks. Many of the original populations have been extirpated, but it has recently been reestablished in the Arroyo Seco (Los Angeles County), a tributary of the Los Angeles River. The species also has been successfully introduced in a number of other rivers in the area, and can be found as far north as Chorro Creek in San Luis Obispo County, and as far east as the Mojave River. The Mojave and Cuyama River populations extend into the ranges of related fishes, and hybridize with Mojave chub and California roach, respectively.

Grasshopper sparrow
Grasshopper sparrow is a small, chunky grassland sparrow with clear buff breast and scaly-looking, dark rufous upperparts and a pale central stripe on crown; short, pointed tail. Apparently it can survive in areas where the introduced plants are combined with the native plants and the livestock grazing is not too intensive. It is found in open grassy and weedy meadows, pastures, and plains. This sparrow breeds from British Columbia, Manitoba, and New Hampshire south to Florida (rare), West Indies, and Mexico but winters north to California, Texas, and North Carolina. This elusive sparrow is named for its buzzy song. As soon as a weedy field becomes overgrown or trees have filled in an abandoned pasture, the Grasshopper Sparrow no longer uses the site

for breeding. Less of a seed-eater than our other grass sparrows, it feeds largely on insects. When flushed, this sparrow flies a short distance and drops out of sight, into tall grass.

Western yellow bat
Western yellow bat can be distinguished from other bat species by the combination of yellow coloration, size (forearm = 42-50 mm), and short ears. Lasiurus xanthinus occurs in northern Mexico, western Arizona, southern California, southern Nevada, and southwestern New Mexico. Western yellow bats are associated with dry, thorny vegetation on the Mexican Plateau, and are found in desert regions of the southwestern United States, where they show a particular association with palms and other desert riparian habitats. They are known to occur in a number of palm oases, but are also believed to be expanding their range with the increased usage of ornamental palms in landscaping. Yellow bats are suspected to be non-colonial. Individuals usually roost in trees, hanging from the underside of a leaf. They are commonly found in the southwestern U.S. roosting in the skirt of dead fronds in both native and non-native palm trees, and have also been documented roosting in cottonwood trees. At least some individuals or populations may be migratory, although some individuals appear to be present year-round, even in the northernmost portion of their range. Yellow bats are insectivorous. Probably one of the primary threats in the U.S., however, is the cosmetic trimming of palm fronds. The use of pesticides in date-palm and other orchards may also constitute a threat to both roosting bats and the insects upon which they forage.

Coastal California gnatcatcher (*Polioptila californica californica*)
The Coastal California gnatcatcher is a small blue-gray songbird. It has dark blue-gray feathers on its back and grayish-white feathers on its underside. The wings have a brownish wash to them. Its long tail is mostly black with white outer tail feathers. They have a thin, small bill. The males have a black cap during the summer which is absent during the winter. The gnatcatcher typically occurs in or near sage scrub habitat, which includes the following plant communities as classified by Holland (1986): Venturan coastal sage scrub, Diegan coastal sage scrub, maritime succulent scrub, Riversidean sage scrub, Riversidean alluvial fan sage scrub, southern coastal bluff scrub, and coastal sage-chaparral scrub. Ninety-nine percent of all gnatcatcher locality records occur at or below an elevation of 984 feet (Atwood 1990). Gnatcatchers also use chaparral, grassland, and riparian habitats where they occur adjacent to sage scrub (Bontrager 1991). These non-sage scrub habitats are used for dispersal (Bowler 1995; Campbell et al. 1995). Gnatcatchers are persistent nest builders and often attempt multiple broods, which is suggestive of a high reproductive potential. Historically, gnatcatchers occurred from southern Ventura County southward through Los Angeles, Orange, Riverside, San Bernardino, and San Diego counties, and into Baja California, Mexico (Atwood 1990). The amount of coastal sage scrub available to gnatcatchers has continued to decrease during the period after the listing of the species. It is estimated that up to 90 percent of coastal sage scrub vegetation has been lost as a result of development and land conversion (Barbour and Major 1977).

Yellow-breasted chat
The yellow-breasted chat Grinnell and Miller (1944) reported that chats bred over the entire length and breadth of the state exclusive of higher mountains and coastal islands, and were more numerous toward the interior. Breeders arrive from April to early May. Departure from breeding grounds occurs from August – September (after complete prebasic molt); some may leave in July, some stragglers into October. Spring migration: March - May. Fall migration: July - October. Poorly documented due to the species' secretive nature; it goes largely undetected once singing ceases in mid-July (Dunn and Garrett 1997). Delacour (1959) reported the capture of an adult chat in Los Angeles on 5 December 1958. Dunn and Garrett (1997) report that western birds appear to move

south during fall migration on a broad front, although migrants are generally scarcer near the coast. In California, chats require dense riparian thickets of willows, vine tangles, and dense brush associated with streams, swampy ground and the borders of small ponds (Small 1994). Chat nests frequently host Brown-headed Cowbird (Molothrus ater) and rarely hosts the Bronzed Cowbird (Molothrus aeneus). Flood control and river channelization eliminates early successional riparian habitat (willow/alder shrub habitats with a dense understory) that chats (and many other riparian focal species) use for breeding. Hunter et al. (1988) found that chats will use the exotic saltcedar (Tamarix chinensis), and they suggest that chats may use the saltcedar preferentially to native habitat. The authors do not report the frequency of nest placement in saltcedar, but Brown and Trosset (1989) report that chats nest in tamarisk and native shrubs in proportion to the occurrence of the different types of vegetation.

Least Bell's vireo
The least Bell's vireo (LBVI) is a small, olive-gray migratory songbird that nests and forages almost exclusively in riparian woodland habitats. Bell's vireos as a group are highly territorial and are almost exclusively insectivorous. Least Bell's vireo nesting habitat typically consists of well-developed overstory, understory, and low densities of aquatic and herbaceous cover. The understory frequently contains dense sub-shrub or shrub thickets. These thickets are often dominated by plants such as narrow-leaf willow, mulefat, young individuals of other willow species such as arroyo willow or black willow, and one or more herbaceous species. LBVI generally begin to arrive from their wintering range in southern Baja California and establish breeding territories by mid-March to late-March. A large majority of breeding vireos apparently depart their breeding grounds by the third week of September and only a very few have been found wintering in the United States.

LBVI typically inhabit riparian forests with well-developed overstories and understories. The understory often contains dense subscrub or thickets above the ground. These thickets are usually dominated by sandbar willow, mulefat, blackberry (Rubus ursinus), and young trees of other willow species such as black willow and arroyo willow. The overstory usually contains black willow, cottonwood and Sycamore. Although LBVI use a variety of riparian plant species for nesting, it appears that the structure of the vegetation is more important than other factors such as species composition or the age of the stand. Vireos forage in riparian and adjacent chaparral habitats up to 984 feet from the nest, and use both high and low scrub layers as foraging substrate.

For further information regarding flora and fauna that may have a potential to occur in the Chino Basin area, please refer to Table 3.3 in the Biological Resources Report.

4.3.4 Regulatory Setting

The proposed OBMPU would be required to comply with the following federal and state regulations and laws:

1. NEPA and CEQA guidelines that apply to sensitive biological resources
2. U.S. Army Corps of Engineers (COE) Clean Water Act Section 404 Permit and
3. U.S. Environmental Protection Agency (EPA) 404 (b)1 Alternatives Analysis
4. Section 7 and/or 10 of U.S. Endangered Species Act of 1973, as amended
5. U.S. Migratory Bird Treaty Act
6. U.S. Bald Eagle Act
7. California Endangered Species Act

8. California Department of Fish and Game (CDFG) Streambed Alteration Agreement
9. (Section 1600 of the Fish and Game Code)
10. State of California Native Plant Protection Act
11. Plant Protection and Management Ordinances (County Code Title 8, Div. 11)

4.3.4.1 Federal

4.3.4.1.1 Federal Endangered Species Act

The Federal Endangered Species Act (FESA) (1973) protects plants and wildlife that are listed by the United States Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) as endangered or threatened. Section 9 of FESA (USA) prohibits the taking of endangered wildlife, where taking is defined as any effort to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct" (50 CFR 17.3). For plants, this statute governs removing, possessing, maliciously damaging, or destroying any endangered plant on federal land and removing, cutting, digging up, damaging, or destroying any endangered plant on non-federal land in knowing violation of state law (16 United States Code [USC] 1538). Under Section 7 of FESA, federal agencies are required to consult with the USFWS if their actions, including permit approvals or funding, could adversely affect an endangered species (including plants) or its critical habitat. Through consultation and the issuance of a biological opinion, the USFWS may issue an incidental take statement allowing take of the species that is incidental to an otherwise authorized activity, provided the action will not jeopardize the continued existence of the species. FESA specifies that the USFWS designate habitat for a species at the time of its listing in which are found the physical or biological features "essential to the conservation of the species," or which may require "special Management consideration or protection..." (16 USC § 1533[a][3].2; 16 USC § 1532[a]). This designated Critical Habitat is then afforded the same protection under the FESA as individuals of the species itself, requiring issuance of an Incidental Take Permit prior to any activity that results in "the destruction or adverse modification of habitat .... determined .... to be critical" (16 USC § 1536[a][2]).

Interagency Consultation and Biological Assessments

Section 7 of ESA provides a means for authorizing the "take" of threatened or endangered species by federal agencies, and applies to actions that are conducted, permitted, or funded by a federal agency. The statute requires federal agencies to consult with the USFWS or NMFS, as appropriate, to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of critical habitat for these species. If a proposed project "may affect" a listed species or destroy or modify critical habitat, the lead agency is required to prepare a biological assessment evaluating the nature and severity of the potential effect.

Habitat Conservation Plans

Section 10 of the federal ESA requires the acquisition of an Incidental Take Permit (ITP) from the USFWS by non-federal landowners for activities that might incidentally harm (or "take") endangered or threatened wildlife on their land. To obtain a permit, an applicant must develop a Habitat Conservation Plan that is designed to offset any harmful impacts the proposed activity might have on the species.

4.3.4.1.2 The Migratory Bird Treaty Act of 1918

The Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. 703-711) makes it unlawful to possess, buy, sell, purchase, barter or "take" any migratory bird listed in Title 50 of the Code of Federal Regulations CFR Part 10. "Take" is defined as possession or destruction of migratory birds, their nests or eggs. Disturbances that cause nest abandonment and/or loss of reproductive effort or the loss of habitats upon which these birds depend may be a violation of the MTBA.

4.3.4.1.3 Clean Water Act Section 404

Wetlands are generally considered to be areas that are periodically or permanently inundated by surface or ground water, and support vegetation adapted to life in saturated soil. Wetlands are recognized as important features on a regional and national level due to their high inherent value to fish and wildlife, use as storage areas for storm and floodwaters, and water recharge, filtration, and purification functions. Technical standards for delineating wetlands have been developed by the USACE which generally defines wetlands through consideration of three criteria: hydrology, soils, and vegetation. Under Section 404 of the Clean Water Act (CWA), the USACE is responsible for regulating the discharge of dredged or fill material into waters of the United States. The term “waters” includes wetlands and non-wetland bodies of water that meet specific criteria as defined in the CFR.

The USACE and U.S. Environmental Protection Agency (USEPA) issued a set of guidance documents detailing the process for determining CWA jurisdiction following the U.S. Supreme Court’s decision in *Rapanos v. United States* and *Carabell v. United States* (herein referred to simply as “Rapanos”). The USEPA and USACE issued a summary memorandum of the guidance for implementing the Supreme Court’s decision in Rapanos that addresses the jurisdiction over waters of the United States under the Clean Water Act. The complete set of guidance documents were used to collect relevant data for evaluation by the USEPA and the USACE to determine CWA jurisdiction over a project site and to complete the “significant nexus test” as detailed in the guidelines and the USACE-approved Jurisdictional Determination Form.

4.3.4.1.4 Rivers and Harbors Act 1899

Section 10 of the Rivers and Harbors Act of 1899 requires authorization from the USACE for the construction of any structure in or over any navigable waters of the U.S.

4.3.4.1.5 Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (16 U.S.C. Sections 661 to 667e et seq.) applies to any federal project where any body of water is impounded, diverted, deepened, or otherwise modified. Project proponents are required to consult with the USFWS and the appropriate state wildlife agency.

4.3.4.1.6 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. Section 1801 et seq.) requires all federal agencies to consult with the NMFS on all actions or proposed actions (permitted, funded, or undertaken by the agency) that may adversely affect fish habitats. It also requires cooperation among NMFS, the councils, fishing participants, and federal and state agencies to protect, conserve, and enhance essential fish habitat, which is defined as those waters and substrates needed by fish for spawning, breeding, feeding, and growth to maturity.

4.3.4.1.7 Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (The Eagle Act) (1940), amended in 1962, was originally implemented for the protection of bald eagles (Haliaeetus leucocephalus). In 1962, Congress amended the Eagle Act to cover golden eagles (Aquila chrysaetos), a move that was partially an attempt to strengthen protection of bald eagles, since the latter were often killed by people mistaking them for golden eagles. This act makes it illegal to import, export, take (molest or disturb), sell, purchase, or barter any bald eagle or golden eagle or part thereof. The golden eagle, however, is accorded somewhat lighter protection under the Eagle Act than that of the bald eagle.

4.3.4.1.8 Executive Orders (EO)

Invasive Species—Executive Order 13112 (1999)
Issued on February 3, 1999, promotes the prevention and introduction of invasive species and provides for their control and minimizes the economic, ecological, and human health impacts that invasive species cause through the creation of the Invasive Species Council and Invasive Species Management Plan.

Protection of Wetlands—Executive Order 11990 (1977)
Issued on May 24, 1977, helps avoid the long-term and short-term adverse impacts associated with destroying or modifying wetlands and avoiding direct or indirect support of new construction in wetlands when there is a practicable alternative.

Migratory Bird—EO 13186 (2001)
Issued on January 10, 2001, promotes the conservation of migratory birds and their habitats and directs federal agencies to implement the Migratory Bird Treaty Act. Protection and Enhancement of Environmental Quality—EO 11514 (1970a), issued on March 5, 1970, supports the purpose and policies of the National Environmental Policy Act (NEPA) and directs federal agencies to take measures to meet national environmental goals.

Migratory Bird Treaty Reform Act
The Migratory Bird Treaty Reform Act (Division E, Title I, Section 143 of the Consolidated Appropriations Act, 2005, PL 108–447) amends the Migratory Bird Treaty Act (16 U.S.C. Sections 703 to 712) such that nonnative birds or birds that have been introduced by humans to the United States or its territories are excluded from protection under the Act. It defines a native migratory bird as a species present in the United States and its territories as a result of natural biological or ecological processes. This list excluded two additional species commonly observed in the United States, the rock pigeon (Columba livia) and domestic goose (Anser domesticus).

4.3.4.2 State

4.3.4.2.1 California Endangered Species Act
The California Endangered Species Act (CESA) is similar to the main provisions of the federal ESA and is administered by the California Department of Fish and Game (CDFG). Unlike its federal counterpart, CESA applies the take prohibitions to not only listed threatened and endangered species, but also to state candidate species for listing. Section 86 of the Fish and Game Code defines "take" as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” The CDFG maintains lists for Candidate-Endangered Species and Candidate-Threatened Species, which have the same protection as listed species. Under CESA the term "endangered species" is defined as a species of plant, fish, or wildlife, which is "in serious danger of becoming extinct throughout all, or a significant portion of its range" and is limited to species or subspecies native to California.

4.3.4.2.2 Clean Water Act Section 401/Porter-Cologne Act
The State of California regulates water quality related to discharge of dredge or fill material into waters of the State pursuant to Section 401 of the CWA. Section 401 compliance is a federal

mandate regulated by the State. The local Regional Water Quality Control Boards (RWQCB) have jurisdiction over all those areas defined as jurisdictional under Section 404 of the CWA. In addition, the RWQCBs regulate water quality for all waters of the State, which may also include isolated wetlands, as defined by the California Porter-Cologne Water Quality Control Act (Porter Cologne; Ca. Water Code, Div. 7, Section 13000 et seq.). The RWQCB regulates discharges that can affect water quality of both waters of the U.S. and waters of the State. If there is no significant nexus to a traditional navigable water body and thus no USACE jurisdiction over waters of the U.S., then the RWQCB regulates water quality of waters of the State through a Waste Discharge Permit, as required to comply with the Porter-Cologne Water Quality Control Act when a Section 401 water quality certification would not apply.

4.3.4.2.3 Sections 1600 through 1606 of the California Fish and Game Code (CFGC)

This section requires that a Streambed Alteration Application be submitted to the CDFW for "any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake." The CDFW reviews the proposed actions and, if necessary, submits to the applicant a proposal for measures to protect affected fish and wildlife resources. The final proposal that is mutually agreed upon by the Department and the applicant is the Streambed Alteration Agreement. Often, projects that require a Streambed Alteration Agreement also require a permit from the USACE under Section 404 of the CWA. In these instances, the conditions of the Section 404 permit and the Streambed Alteration Agreement may overlap.

4.3.4.2.4 California Department of Fish and Game Codes

All birds, and raptors specifically, and their nests, eggs and parts thereof are protected under Sections 3503.5 of the California Fish and Game Code. Disturbance that causes nest abandonment and/or loss of reproductive effort (e.g., killing or abandonment of eggs or young) is considered a violation of this code. Additionally, Section 3513 of the Fish and Game Code prohibits the take or possession of any migratory non-game bird listed by the MBTA. The CDFG has jurisdiction over the conservation, protection, and management of wildlife, native plants, and habitat necessary to maintain biologically sustainable populations (California Fish & Game Code Section 1802). The CDFG, as a trustee agency under *CEQA Guidelines* Section 15386, provides expertise in reviewing and commenting on environmental documents and makes and regulates protocols regarding potential negative impacts to biological resources held in California.

4.3.4.2.5 Fully Protected Species

Four sections of the California Fish and Game Code (CFGC) list 37 fully protected species (CFGC Sections 3511, 4700, 5050, and 5515). These sections prohibit take or possession "at any time" of the species listed, with few exceptions, and state that "no provision of this code or any other law will be construed to authorize the issuance of permits or licenses to 'take' the species," and that no previously issued permits or licenses for take of the species "shall have any force or effect" for authorizing take or possession.

4.3.4.2.6 Bird Nesting Protections

Bird nesting protections (Sections 3503, 3503.5, 3511, and 3513) in the CFGC include the following:

- Section 3503 prohibits the take, possession, or needless destruction of the nest or eggs of any bird.

- Section 3503.5 prohibits the take, possession, or needless destruction of any nests, eggs, or birds in the orders Falconiformes (new world vultures, hawks, eagles, ospreys, and falcons, among others), or Strigiformes (owls).
- Section 3511 prohibits the take or possession of fully protected birds.
- Section 3513 prohibits the take or possession of any migratory nongame bird or part thereof, as designated in the MBTA. To avoid violation of the take provisions, it is generally required that project-related disturbance at active nesting territories be reduced or eliminated during the nesting cycle.

4.3.4.2.7 CA Migratory Bird Act-Assembly Bill 454

Existing federal law, the Migratory Bird Treaty Act, provides for the protection of migratory birds, as specified. The federal act also authorizes states and territories of the United States to make and enforce laws or regulations that give further protection to migratory birds, their nests, and eggs. Existing state law makes unlawful the taking or possession of any migratory nongame bird, or part of any migratory nongame bird, as designated in the federal act, except as provided by rules and regulations adopted by the United States Secretary of the Interior under provisions of the federal act……. (a) It is unlawful to take or possess any migratory nongame bird as designated in the federal Migratory Bird Treaty Act (16 U.S.C. Sec. 703 et seq.), or any part of a migratory nongame bird described in this section, except as provided by rules and regulations adopted by the United States Secretary of the Interior under that federal act.

4.3.4.2.8 Native Plant Protection Act

The Native Plant Protect Act (NPPA) (1977) (CFGC Sections 1900-1913) was created with the intent to “preserve, protect, and enhance rare and endangered plants in this State.” The NPPA is administered by CDFW. The Fish and Game Commission has the authority to designate native plants as endangered or rare and to protect endangered and rare plants from take. CESA (CFGC 2050-2116) provided further protection for rare and endangered plant species, but the NPPA remains part of the Fish and Game Code.

4.3.4.2.9 Natural Communities Conservation Planning Act

This act was enacted to encourage broad-based planning to provide for effective protection and conservation of the state’s wildlife resources while continuing to allow appropriate development and growth (CFGC Sections 2800 to 2835). Natural Community Conservation Plans (NCCP) may be implemented, which identify measures necessary to conserve and manage natural biological diversity within the planning area, while allowing compatible and appropriate economic development, growth, and other human uses.

4.3.4.2.10 Senate Concurrent Resolution No. 17 – Oak Woodlands

State Senate Concurrent Resolution No. 17 is legislation that requests state agencies having land use planning duties and responsibilities to assess and determine the effects of their decisions or actions within any oak woodlands containing Blue, Engleman, Valley, or Coast Live Oak. The measure requests those state agencies to preserve and protect native oak woodlands to the maximum extent feasible or provide replacement plantings where designated oak species are removed from oak woodlands. The mitigation measures, as described above, will ensure that impacts to oak woodlands are less than significant

4.3.4.3 Local

The Chino Basin area encompasses unincorporated county land and nine incorporated cities. Each of these jurisdictions has its own independent General Plan and municipal code that pertain to biological resources. The County of San Bernardino and City of Upland have tree removal permits, the City of Fontana, City of Chino Hills, and the City of Rancho Cucamonga contain tree preservation ordinances. The cities of Montclair and Chino do not have ordinances protecting trees.

4.3.5 Thresholds of Significance

The County's IS/EA Form contains six criteria for determining impacts to biological resources in the Environmental Assessment Form. The NOP concluded that the proposed project may result in impacts that may exceed thresholds of significance for the following issue areas and they are discussed in the following section.

1. Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?
2. Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?
3. Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?
4. Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?
5. Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?
6. Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

The potential biological changes in the environment are addressed in response to the above thresholds in the following analysis.

4.3.6 Potential Impacts

a) Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

The construction and operation of the infrastructure across all Project Categories required to support the OBMPU may result in direct impacts and indirect impacts on special-status wildlife species. The extent and nature of impacts on special-status wildlife species varies depending on the species under consideration, their range, and the type and quality of suitable habitats present.

In general, permanent and temporary direct impacts on special-status wildlife species during construction of the future infrastructure improvements across all Project Categories include mortality or injury, and disturbances to suitable habitats for special-status wildlife species, including disruption of wetland and streambeds; water pollution; and reptile, bird, and mammal burrow or nest disturbance. These habitat disturbances within the Chino Basin area, or at specific new or modified facilities, could lead to the permanent or temporary abandonment of these habitats by special-status species, a disruption in the life cycle of these species, or direct mortality or injury of individuals of these species. Because it is difficult to determine the number or extent of these kinds of impacts, direct impacts on special-status wildlife species will be addressed in subsequent, project specific environmental reviews once a specific component of the OBMPU has been defined for design and implementation.

Permanent and temporary indirect impacts on special-status wildlife species would occur through construction or maintenance activities associated with future OBMPU facilities in a number of ways depending on the species and type of disturbance. Potential indirect impacts include erosion, soil compaction, increased siltation and sedimentation, fractures in the hardpan soils or rock outcroppings, alteration of jurisdictional water hydrology, dust aerosolization, host plant stress, destruction of native vegetation, habitat fragmentation, and noise and light pollution. These indirect impacts could lead to the disturbance of special-status wildlife species such as a temporary shift in foraging patterns or territories, refugia abandonment, increased predation, decreased reproductive success, and reduced population viability. Because it is difficult to quantify and measure these kinds of impacts, indirect impacts on special-status wildlife species are described qualitatively and will be quantitatively addressed in project specific second tier environmental evaluations.

Construction of any OBMPU facility should only result in mostly minimal impacts on special-status wildlife species, because only a limited amount of marginal habitat for special-status wildlife species would be impacted by construction activities. All facilities would impact barren, urban, or agricultural areas, and thus construction would potentially impact only the special-status wildlife species that use mostly urban areas (e.g., special-status bird species, special-status mammal species, special-status bat species or species present in wetland or streambed habitats).

During ongoing operations or maintenance activities requiring ground disturbance, clearing, or grubbing that could cause erosion and sedimentation or that could indirectly affect the hydrology of nearby jurisdictional waters and the species that depend on these resources. Chemical runoff from trucks or equipment within the future OBMPU facility rights-of-way could indirectly degrade suitable habitat used by these species that are present adjacent to or within the management zone boundaries. If operational maintenance requires weed abatement activities, such as the use of herbicides, these activities could also contribute to chemical runoff and pollution of adjacent suitable habitats. However, maintenance activities that would have potential impacts on special-status wildlife species are limited to the program right-of-way areas that are currently in service or that will be added to normal program operations and maintenance through separate design, environmental review and construction of such facilities at a later date.

Potential impacts on jurisdictional waters, special-status plant communities, protected trees, special-status plant, and wildlife species (including critical habitat) will be analyzed for each facility as site-specific design has been established. Once a particular facility area of potential effect (APE) is established, the following steps will be taken during a detailed second-tier evaluation to assure resource impacts are quantified, and site specific measures are identified: Where none of the biological resource impacts discussed under the **4.3.6(a).1 Conclusion** below, will occur, no further biological resource impact analysis may be necessary; Where potentially significant impacts may occur, but specific mitigation outlined under **4.3.7 Avoidance, Minimization, and Mitigation Measures**, below, can reduce such impacts to a less than significant level. Future documentation may rely upon the procedures outlined in Sections 15162 and 15168 of the State CEQA Guidelines to determine the required level of CEQA documentation for future infrastructure projects. Future OBMPU Facilities will be required to perform these analyses at the time individual infrastructure improvements are considered for funding and implementation.

4.3.6(a).1 Prado Basin Habitat

Project Category 3, which includes storage basins, includes storage basins that would divert flows that ultimately reach Prado Basin. Prado Basin supports dense riparian forests supported in part by surface runoff contributed by these creeks. The reduction of surface water would reduce the total flow to the Prado Basin. The habitat within Prado Basin is supported by surface water inflows, rising groundwater, and detention by the Prado Dam. Groundwater levels are managed by the Chino Basin Watermaster with the objectives of optimizing groundwater storage capacity while maintaining groundwater levels within the basin to continue supporting habitat that in turn supports sensitive species such as least Bells vireo. A reasonable assumption of the volume of water consumed by Prado Basin wetland/riparian habitat is about 18,000 AFY. The IEUA and Western Municipal Water District (WMWD) are responsible for an average annual flow of 42,000 afy at Prado. However, when their cumulative credits exceed 30,000 afy (which they currently do and will continue to do so for the foreseeable future), they are responsible for a minimum annual flow of 34,000 afy. IEUA and WMWD split this responsibility 50/50, thus each agency is responsible for 17,000 afy of flow at Prado. The OBMPU is not anticipated to result in the inability of either IEUA or WMWD to meet this obligation, and is therefore not anticipated to result in a significant impact to the health of the habitat supported at Prado Basin.

For example, the Watermaster, on behalf of the Chino Basin stakeholders and parties, committed to maintain the current extent of Prado Basin habitat in light of the hydraulic control program initiated in the Peace II SEIR certified in 2010. To ensure that interested agencies have sufficient information to evaluate the effects of hydraulic control, the Watermaster created the Prado Basin Habitat Sustainability Program. This program has been in effect for the past five years, and an annual report of habitat status is compiled and published by the Watermaster. The monitoring itself is not considered mitigation, but the commitment of Watermaster to initiate adaptive management programs to prevent significant loss of habitat (due to hydraulic control) serves as the mitigation to offset such damage or loss of Prado Basin Habitat.

Since the 2010 SEIR was certified, very little additional surface water diversions have been implemented within the Chino Basin. The OBMPU has identified future surface water diversions to increase water availability within the Chino Basin, but these potential diversions have not been quantified and are considered speculative until specific projects are proposed for future implementation. Of critical importance is to ensure that any future diversion proposals receive detailed evaluation and correlation of such diversions to the potential loss of essential habitat within Prado Basin. There is sufficient data regarding historic surface flows into Prado Basin from the Upper Santa Ana Watershed to both craft diversion proposals to minimize habitat impacts, such as diverting flows only during high flow winter periods (for example according to Exhibit 4.7-2 (Subchapter 4.7, Hydrology and Water Quality) runoff downstream of Prado Dam was measured at about 800,000 acre-feet), which can far exceed the water demand of the Prado Basin habitat (estimated at 18,000 afy), and to meet the 34,000 afy (total estimate of 52,000 afy) that must be delivered from the Chino Basin downstream of Prado Dam. In a surplus water year, additional diversions can clearly be achieved without adversely impacting either the Prado Basin habitat or downstream water rights. On the other hand, during a low-flow-year, additional diversions could have an adverse impact on this habitat. Therefore, mitigation is required to continue the monitoring program and to conduct detailed environmental reviews of future diversion impacts on

Prado Basin habitat prior to approval of such projects. Thus, no specific diversion project can be implemented until an appropriate second-tier, public CEQA review is completed.

4.3.6(a).2 Conclusion

- Each biological resource will be evaluated for its presence or absence, and for the presence of habitat that could support the resource or provide habitat for the resource. Suitable habitat was determined based on background review and identification of species-specific life-history requirements.
- Potential impacts on special-status wildlife species will be determined using a habitat-based approach where the presence of the species was assumed in suitable habitat. Habitats in the project footprint and vicinity were determined through a combination of background review, habitat mapping during field surveys, and aerial photograph interpretation.
- Potential impacts on designated critical habitat will be based on the location of the critical habitat relative to the project footprint and the presence of primary constituent elements (PCEs) associated with the critical habitat designation.

In determining the potential direct and indirect impacts associated with construction and operation impacts on biological resources, a number of assumptions and limitations are identified:

- Construction and operation impacts will be considered temporary if they can be fully restored to pre-disturbance conditions following construction. Temporary impacts would include construction staging areas, construction laydown areas, relocation of underground utilities, and other work space that would not be occupied by permanent above-ground facilities during project operation.
- Impacts will be considered permanent when they have lasting effects beyond the project construction period, or cannot be fully restored following construction. Permanent impacts would include new right-of-way for new or expanded facility or water conveyance systems, road crossings, electrical substations, maintenance and operations facilities, and monitoring stations.
- Certain jurisdictional waters types (wetlands) are especially sensitive to disturbance; therefore, impacts on these features will be considered permanent where these features cannot be restored to their pre-project condition due to the permanent loss by new infrastructure.

Ultimately, because the Chino Basin contains many areas that may support candidate, sensitive, or special status species, and the specific sites in which future OBMPU facilities will be developed is presently unknown, a significant impact may occur.

b) Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

4.3.6(b).1 Critical Habitat

Critical habitat has been designated for several species adjacent to, directly overlapping, or in the general vicinity of the Program area, with significant concentration along the Santa Ana River corridor. One example is the critical habitat designated for the Southwestern willow flycatcher along the Santa Ana River to the south of the Program area. The specific locations of pertinent critical habitat areas are shown in maps contained in Chapter 6 – Figures of the Biological Resources Report. The primary mitigation for potential impacts to critical habitat will be avoidance. Where avoidance is not feasible, mitigation measures **BIO-1** and **BIO-7** will be implemented. It is rare that critical habitat extends directly within the property owned by project proponents because these areas are already generally maintained to support the OBMPU operations, not protect habitat. However, where either permanent or temporary disturbances will occur within critical habitat, full mitigation will be provided to offset impacts to such habitat. As indicated in the subsequent discussion on cumulative impacts, certain areas that contain critical habitat for species may not be fully mitigable, and an unavoidable significant adverse biological resource impact may occur. This can only be determined after future projects are identified, and design and engineering are completed, and avoidance measures incorporated per specific, necessary project actions. Where avoidance cannot be achieved, the residual impact to critical habitat may be unavoidable, and therefore, significant.

4.3.6(b).2 Riparian Habitat or Sensitive Natural Communities

Please review Table 4.3-2, Project Area Wildlife Habitat Types, Land Uses, and Typical Vegetation. Additionally, please refer to the discussion under item (a) above. Mitigation is required to address potential impacts to riparian habitat or other sensitive natural communities, furthermore, the future OBMPU Facilities will be required to prepare site-specific subsequent environmental documentation to minimize impacts to riparian habitat or other sensitive natural communities where applicable.

c) Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

4.3.6(c).1 Wetlands and Other Waters Coordination Summary

Wetlands and other waters in the project vicinity, including waters of the U.S., waters of the state, and state streambeds, are regulated by the federal government (USACE) and the State of California (RWRCB and CDFW). When considering wetlands and other waters, these features are collectively termed jurisdictional waters. Wetlands and other waters are assumed to fall under the jurisdiction of the USACE, SWRCB, and CDFW for purposes of this discussion. The jurisdictional status of these waters will be confirmed by the USACE, SWRCB, and CDFW when the regulatory permitting process is conducted. Further definitions are presented below.

- **Wetlands**: According to the USACE Wetlands Delineation Manual (Environmental Laboratory 1987) and the recently published Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) (USACE 2008b), three criteria must be satisfied to classify an area as a jurisdictional wetland: (1) a predominance of plant life that is adapted to life in wet conditions (hydrophytic vegetation), (2) soils that saturate, flood, or pond long enough during the growing season to develop anaerobic conditions in the upper part (hydric soils), and (3) permanent or periodic inundation or soils saturation, at least seasonally (wetland hydrology).
- **Waters of the U.S.:** The CWA defines waters of the U.S. as follows: (1) all waters that are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters that are subject to the ebb and flow of the tide; (2) all interstate waters including interstate wetlands; (3) all other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use,

degradation or destruction of which could affect interstate or foreign commerce; (4) all impoundments of waters otherwise defined as waters of the U.S.; (5) tributaries to the foregoing types of waters; and (6) wetlands adjacent to the foregoing waters (33 CFR 328.3[a]). Current status of the Waters of the US Rule continues to change. Any regulatory environment must be reassessed for each future project to determine which rules apply and which permitting may be necessary during the planning and permitting phase.

- **Waters of the State**: Waters of the state are broadly defined by the Porter-Cologne Water Quality Control Act (Section 1305[e]). Under this definition, isolated wetlands that may not be subject to regulations under federal law are considered waters of the state. On March 9, 2012, the California Water Boards released a preliminary draft of their Wetland Area Protection Policy, which includes a proposed wetland definition. Under their proposed definition, an area is a wetland if, under normal circumstances, it (1) is continuously or recurrently inundated with shallow water or saturated within the upper substrate; (2) has anaerobic conditions within the upper substrate caused by such hydrology; and (3) either lacks vegetation or the vegetation is dominated by hydrophytes (SWRCB 2012).
- **State Streambeds**: CDFW has not released an official definition of lake or streambed and therefore the extent of the area regulated under Section 1602 remains undefined. However, CDFW jurisdiction generally includes the streambed and bank, together with the adjacent floodplain and riparian vegetation.

Based on the background review and subsequent windshield surveys, numerous jurisdictional waters occur in the Study Area where the OBMPU will be implemented. Many of the jurisdictional waters (built waterways) are heavily managed by local agencies, which serve public water needs, flood control, and agricultural production. As a result, some of these jurisdictional waters support few natural biological functions and values. The biological functions of these man-made features include limited habitat for wildlife and capacity for water storage or release. A number of these jurisdictional waters have been previously degraded or impacted by existing roads and water resource management infrastructure.

Direct impacts on natural and man-made features include the removal or modification of local hydrology, the redirection of flow, and the placement of fill material. In the case of man-made features, these impacts would remove or disrupt the limited biological functions that these features provide. In natural areas, these activities would remove or disrupt the hydrology, vegetation, wildlife use, water quality conditions, and other biological functions provided by the resources.

Temporary impacts on jurisdictional waters include the placement of temporary fill during construction in both man-made and natural jurisdictional waters. Temporary fill could be placed during the construction of access roads and staging/equipment storage areas. The temporary fill would result in a temporary loss of jurisdictional waters and could potentially increase erosion and sediment transport into adjacent areas.

Potential indirect impacts on jurisdictional waters include a number of water-quality-related impacts: erosion and transport of fine sediments or fill downstream of construction to unintentional release of contaminants into jurisdictional waters that are outside of the project footprint. These discharges would indirectly impact adjacent or downstream jurisdictional waters.

A Jurisdictional Determination and subsequent approval of the determination by the regulatory agencies will be conducted on each facility as the design becomes available and construction of a particular facility is scheduled to occur within the foreseeable future. However, unforeseen direct impacts, indirect impacts, and temporary impacts to natural and man-made water bodies may occur depending upon the design of the infrastructure improvement, and the construction methodology required.

d) Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Please refer to the discussion under item (a) above. The proposed OBMPU will be developed within the Chino Basin, which contains many areas that could serve to enable movement of native resident or migratory fish or wildlife species, or serve established native resident or migratory wildlife movement corridors, or serve as native wildlife nursery sites. As such, future OBMPU Facilities will be required to perform these subsequent environmental analyses at the time individual infrastructure improvements are considered for funding. Mitigation is provided below to minimize impacts under this issue to a level of less than significant.

e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Please refer to the discussion under item (a) above. The proposed OBMPU will be developed within the Chino Basin includes the following incorporated cities: Chino, Chino Hills, Eastvale, Fontana, Jurupa Valley, Montclair, Ontario, Pomona, Rancho Cucamonga, and Upland. The Basin includes limited areas of unincorporated Riverside and San Bernardino Counties. As such, future OBMPU Facilities would be subject to various local ordinances. As discussed under item (a) above, mitigation identified below is required to minimize impacts to a level of less than significant.

f) Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

The OBMPU is located within the Chino Basin, which includes a part of western Riverside County, and as such, areas located therein are subject to the Western Riverside County Multiple Species Habitat Conservation Plan (HCP). Other HCPs within the Chino Basin include the Oakmont Industrial Group HCP in Ontario and the North Fontana Multiple Species Habitat Conservation Plan in Fontana. OBMPU Facilities located within these areas would have a potential to conflict with the provisions of an HCP, therefore, mitigation is required to minimize impacts to a less than significant level.

4.3.7 Avoidance, Minimization and Mitigation Measures

Because the individual projects implemented throughout the Program could result in potentially significant impacts on biological resources, mitigation measures were designed to avoid or reduce the impacts on these resources. The mitigation strategy includes avoidance of impacts on biological resources to the extent possible: field verification of sensitive resources and filling data gaps; the formulation of alternative designs (minimization and avoidance); limiting modifications to access and egress points to facilities (minimization); designing cuts and fills to minimize the area of disturbance; and where necessary, and compensation to offset unavoidable impacts to individual species or sensitive habitat.

The following mitigation measures are required to reduce impacts associated with future program site-specific projects to a less than significant level. Each stakeholder implementing specific project-related specific capital improvement projects shall implement the measures outlined below, as needed, when the impact being mitigated will be caused by such project.

To reduce or prevent activities that may adversely affect sensitive species, the following mitigation measures will be incorporated into any specific projects and/or contractor specifications for future project-related impacts to protect sensitive resources and habitat.

BIO-1 ***Where future project-related impacts will affect undeveloped land, site surveys shall be conducted by a qualified biologist/ecologist. If sensitive species are identified as a result of the survey for which mitigation/compensation must be provided in accordance with regulatory requirements, the following subsequent mitigation actions will be taken:***

a. ***The project proponent shall provide compensation for sensitive habitat acreage lost by acquiring and protecting in perpetuity (through property or mitigation bank credit acquisition) habitat for the sensitive species at a ratio of not less than 1:1 for habitat lost. The property acquisition shall include the presence of at least one animal or plant per animal or plant lost at the development site to compensate for the loss of individual sensitive species.***

b. ***The final mitigation may differ from the above values based on negotiations between the project proponent and USFWS and CDFW for any incidental take permits for listed species. The project proponent shall retain a copy of the incidental take permit as verification that the mitigation of significant biological resource impacts at a project site with sensitive biological resources has been accomplished.***

c. ***Preconstruction botanical surveys for special-status plant communities and special-status plant species will be conducted. in areas that were not previously surveyed because of access or timing issues or project design changes, pre-construction surveys for special-status plant communities and special-status plant species will be conducted before the start of ground-disturbing activities during the appropriate blooming period(s) for the species.***

BIO-2 ***Biological Resources Management Plan: During final design, a BRMP will be prepared to assemble the biological resources mitigation measures for each specific infrastructure improvement in the future. The BRMP will include terms and conditions from applicable permits and agreements and make provisions for monitoring assignments, scheduling, and responsibility. The BRMP will also discuss habitat replacement and revegetation, protection during ground-disturbing activities, performance (growth) standards, maintenance criteria, and monitoring requirements for temporary and permanent native plant community impacts. The parameters of the BRMP will be formed with the mitigation measures from the project-level EIR/EIS, including terms and conditions as applicable from the USFWS, USACE, SWRCB/RWQCB, and CDFW.***

To reduce or prevent activities that may adversely affect rivers, streambeds or wetlands, the following mitigation measures will be incorporated into any specific projects and/or contractor specifications for future project-related impacts to protect sensitive resources and habitat.

BIO-3 ***Prior to discharge of fill or streambed alteration of jurisdictional areas, the project proponent shall obtain regulatory permits from the U.S. Army Corps of Engineers, local Regional Water Quality Control Board and the California Department of Fish and Wildlife. Any future project that must discharge fill into***

a channel or otherwise alter a streambed shall be minimized to the extent feasible, and any discharge of fill not avoidable shall be mitigated through compensatory mitigation. Mitigation can be provided by restoration of temporary impacts, enhancement of existing resources, or purchasing into any authorized mitigation bank or in-lieu fee program; by selecting a site of comparable acreage near the site and enhancing it with a native riparian habitat or invasive species removal in accordance with a habitat mitigation plan approved by regulatory agencies; or by acquiring sufficient compensating habitat to meet regulatory agency requirements. Typically, regulatory agencies require mitigation for jurisdictional waters without any riparian or wetland habitat to be mitigated at a 1:1 ratio. For loss of any riparian or other wetland areas, the mitigation ratio will begin at 2:1 and the ratio will rise based on the type of habitat, habitat quality, and presence of sensitive or listed plants or animals in the affected area. A Habitat Mitigation and Monitoring Proposal shall be prepared and reviewed and approved by the appropriate regulatory agencies. The project proponent will also obtain permits from the regulatory agencies (U.S. Army Corps of Engineers, Regional Water Quality Control Board, CDFW and any other applicable regulatory agency with jurisdiction over the proposed facility improvement) if any impacts to jurisdictional areas will occur. These agencies can impose greater mitigation requirements in their permits, but Caltrans will utilize the ratios outlined above as the minimum required to offset or compensate for impacts to jurisdictional waters, riparian areas or other wetlands.

BIO-4 Jurisdictional Water Preconstruction Surveys: A jurisdictional water preconstruction survey will be conducted at least six months before the start of ground-disturbing activities to identify and map all jurisdictional waters in the project footprint and if possible within a 250-foot buffer. The purpose of this survey is to confirm the extent of jurisdictional waters in areas where permission to enter was not previously granted and where aerial photograph interpretation was used to estimate the extent of these features. If possible, surveys would be performed during the spring, when plant species are in bloom and hydrological indicators are most readily identifiable. These results would then be used to calculate impact acreages and determine the amount of compensatory mitigation required to offset the loss of wetland functions and values.

Regarding active bird nests, the following mitigation measure will be applied to this program.

BIO-5 It is illegal to "take" active bird nests of native birds, and if such nests are present at a project site, no take is allowed. To avoid an illegal take of active bird nests, any grubbing, brushing or tree removal will be conducted outside of the State identified nesting season (nesting season is approximately from February 15 through September 1 of a given calendar year). Alternatively, coordination with the CDFW to conduct nesting bird surveys will be completed, and methodology of surveys will be agreed upon. All nesting bird surveys will be conducted by a qualified biologist prior to initiation of ground disturbance to demonstrate that no bird nests will be disturbed by project construction activities.

The following mitigation can reduce the impact to burrowing owl to a less than significant level.

BIO-6 Prior to commencement of construction activity in locations that are not fully developed, protocol burrowing owl survey will be conducted using the 2012 survey protocol methodology identified in the "Staff Report on Burrowing Owl

Mitigation, State of California, Natural Resources Agency, Department of Fish and Game, March 7, 2012", or the most recent CDFW survey protocol available. Protocol surveys shall be conducted by a qualified biologist to determine if any burrowing owl burrows are located within the potential area of impact. If occupied burrows may be impacted, an impact minimization plan shall be developed and approved by CDFW that will protect the burrow in place or provide for passive relocation to an alternate burrow within the vicinity but outside of the project footprint in accordance with current CDFW guidelines. Active nests must be avoided with a 250-foot buffer until all nestlings have fledged.

The following mitigation can ensure consistency with any HCP or MSHCP.

BIO-7 ***Prior to commencement of construction activity on a project facility within a MSHCP/HCP plan area, consistency with that plan, or take authorization through that plan, shall be obtained. Through avoidance, compensation or a comparable mitigation alternative, each project shall be shown to be consistent with a MSHCP/HCP.***

Implementation of the above measures is protective of the environment. Should the regulatory agencies determine an alternative, equivalent mitigation program during acquisition of regulatory permits, such measure shall be deemed equivalent to the above measures and no additional environmental documentation shall be required to implement a measure different than outlined above. Note that if impacts cannot be mitigated or avoided in the manner outlined in the measures above, then subsequent environmental documentation would have to be prepared in accordance with procedures outlined in Section 15162 of the State CEQA Guidelines.

Implementation of the following mitigation measures will ensure that project design and site selection reduce impacts to sensitive biological resources to the extent feasible.

BIO-8 ***Place primary emphasis on the preservation of large, unbroken blocks of natural open space and wildlife habitat area, and protect the integrity of habitat linkages. As part of this emphasis, incorporate programs for purchase of lands, clustering of development to increase the amount of preserved open space, and assurances that the construction of facilities or infrastructure improvements meet standards identical to the environmental protection policies applicable to the specific facilities improvement.***

BIO-9 ***Require facility designs and maintenance activities to be planned to protect habitat values and to preserve significant, viable habitat areas and habitat connection in their natural conditions.***

- ***a.*** ***Within designated habitat areas of rare, threatened or endangered species, prohibit disturbance of protected biotic resources.***
- ***b.*** ***Within riparian areas and wetlands subject to state or federal regulations, riparian woodlands, oak and walnut woodland, and habitat linkages, require that the vegetative resources which contribute to habitat carrying capacity (vegetative diversity, faunal resting sites, foraging areas, and food sources) are preserved in place or replaced so as not to result in an measurable reduction in the reproductive capacity of sensitive biotic resources.***
- ***c.*** ***Within habitats of plants listed by the CNDDB or CNPS as "special" or "of concern," require that new facilities do not result in a reduction in the number of these plants, if they are present.***

BIO-10 ***Maximize the preservation of individual oak, sycamore and walnut trees within proposed OBMPU facility sites.***

BIO-11 ***Require the establishment of buffer zones adjacent to areas of preserved biological resources. Such buffer zones shall be of adequate width to protect biological resources from grading and construction activities, as well as from the long-term use of adjacent lands. Permitted land modification activities with preservation and buffer areas are to be limited to those that are consistent with the maintenance of the reproductive capacity of the identified resources. The land uses and design of project facilities adjacent to a vegetative preservation area, as well as activities within the designated buffer area are not to be permitted to disturb natural drainage patterns to the point that vegetative resources receive too much or too little water to permit their ongoing health. In addition, landscape adjacent to areas of preserved biological resources shall be designed so as to avoid invasive species which could negatively impact the value of the preserved resource.***

Implementation of the following mitigation measures will ensure that project construction impacts to sensitive biological resources, including the potential effects of invasive species, are reduced to the extent feasible.

BIO-12 ***Following construction activities within or adjacent to any natural area, the disturbed areas shall be revegetated using a plant mix of native plant species that are suitable for long term vegetation management at the specific site, which shall be implemented in cooperation with regulatory agencies and with oversight from a qualified biologist. The seeds mix shall be verified to contain the minimum amount of invasive plant species seeds reasonably available for the project area.***

BIO-13 ***Clean Construction Equipment. During construction, equipment will be washed before entering the project footprint to reduce potential indirect impacts from inadvertent introduction of nonnative invasive plant species. Mud and plant materials will be removed from construction equipment when working in native plant communities, near special-status plant communities, or in areas where special-status plant species have been identified.***

BIO-14 ***Contractor Education and Environmental Training.***

Personnel who work onsite will attend a Contractor Education and Environmental Training session. The environmental training is likely to be required by the regulatory agencies and will cover general and specific biological information on the special-status plant species, including the distribution of the resources, the recovery efforts, the legal status of the resources, and the penalties for violation of project permits and laws.

The Contractor Education and Environmental Training sessions will be given before the initiation of construction activities and repeated, as needed, when new personnel begin work within the project limits. Daily updates and synopsis of the training will be performed during the daily safety ("tailgate") meeting. All personnel who attend the training will be required to sign an attendance list stating that they have received the Contractor Education and Environmental Training.

BIO-15 ***Biological Monitor to Be Present during Construction Activities in areas where impacts to Riparian, Riverine, Wetland, Endangered Species or Endangered***

Species Critical habitat occurs. A biological monitor (or monitors) will be present onsite during construction activities that could result in direct or indirect impacts on sensitive biological resources (including listed species) and to oversee permit compliance and monitoring efforts for all special-status resources.

A biological monitor (qualified biologist) is any person who has a bachelor's degree in biological sciences, zoology, botany, ecology, or a closely related field and/or has demonstrated field experience in and knowledge about the identification and life history of the special-status species or jurisdictional waters that could be affected by project activities. The biological monitor(s) will be responsible for monitoring the Contractor to ensure compliance with the Section 404 Individual Permit, Section 401 Water Quality Certification and the Lake and Streambed Alteration Agreement. Activities to ensure compliance would include performing construction-monitoring activities, including monitoring environmental fencing, identifying areas where special-status plant species are or may be present, and advising the Contractor of methods that may minimize or avoid impacts on these resources. Biological monitor(s) will be required to be present in all areas during ground disturbance activities and for all construction activities conducted within or adjacent to identified Environmentally Sensitive Areas, Wildlife Exclusion Fencing, and Non-Disturbance Zones.

BIO-16 Food and Trash: All food-related trash items (e.g., wrappers, cans, bottles, food scraps) will be disposed of in closed containers and removed at least once a week from the construction site.

BIO-17 Rodenticides and Herbicides: Use of rodenticides and herbicides in the project footprint will be restricted. This measure is necessary to prevent poisoning of special-status species and the potential reduction or depletion of the prey populations of special–status wildlife species. Where pesticides must be used, they must be used in full accordance with use instructions for the particular chemical

BIO-18 Wildlife Exclusion Fencing: Exclusion barriers (e.g., silt fences) will be installed at the edge of the construction footprint and along the outer perimeter of Environmentally Sensitive Areas and Environmentally Restricted Areas to restrict special-status species from entering the construction area. The design specifications of the exclusion fencing will be determined through consultation with the USFWS and/or CDFW. Clearance surveys will be conducted for special-status species after the exclusion fence is installed. If necessary, clearance surveys will be conducted daily.

BIO-19 Equipment Staging Areas: Staging areas for construction equipment will be located outside sensitive biological resources areas, including habitat for special-status species, jurisdictional waters, and wildlife movement corridors, to the maximum extent possible.

BIO-20 Plastic mono-filament netting (erosion-control matting) or similar material will <u>not</u> be used in erosion control materials to prevent potential harm to wildlife. Materials such as coconut coir matting or tackified hydroseeding compounds will be used as substitutes.

BIO-21 Vehicle Traffic: During ground-disturbing activities, project-related vehicle traffic will be restricted within the construction area to established roads,

construction areas, and other designated areas to prevent avoidable impacts. Access routes will be clearly flagged and off-road traffic will be prohibited.

BIO-22 Entrapment Prevention: All excavated, steep-sided holes or trenches more than 8 inches deep will be covered at the close of each working day with plywood or similar materials, or a minimum of one escape ramp constructed of earth fill for every 10 feet of trenching will be provided to prevent the entrapment of wildlife. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals. All culverts or similar enclosed structures with a diameter of 4 inches or greater will be covered, screened, or stored more than 1 foot off the ground to prevent use by wildlife. Stored material will be cleared for common and special-status wildlife species before the pipe is subsequently used or moved.

BIO-23 Weed Control Plan: A Weed Control Plan will be prepared and implemented to minimize or avoid the spread of weeds during ground-disturbing activities. In the Weed Control Plan, the following topics will be addressed:

- ***Schedule for noxious weed surveys.***
- ***Weed control treatments, including permitted herbicides, and manual and mechanical methods for application; herbicide application will be restricted in Environmentally Sensitive Areas.***
- ***Timing of the weed control treatment for each plant species.***
- ***Fire prevention measures.***

BIO-24 Dewatering/Water Diversion: Open or flowing water may be present during construction. If construction occurs where there is open or flowing water, a strategy that is approved by the resource agencies (e.g., USACE, SWRCB/RWQCB, and CDFW), such as the creation of cofferdams, will be used to dewater or divert water from the work area. If cofferdams are constructed, implementation of the following cofferdam or water diversion measures is recommended to avoid and lessen impacts on jurisdictional waters during construction:

- ***The cofferdams, filter fabric, and corrugated steel pipe are to be removed from the creek bed after completion of the project.***
- ***The timing of work within all channelized waters is to be coordinated with the regulatory agencies.***
- ***The cofferdam is to be placed upstream of the work area to direct base flows through an appropriately sized diversion pipe. The diversion pipe will extend through the Contractor's work area, where possible, and outlet through a sandbag dam at the downstream end.***
- ***Sediment catch basins immediately below the construction site are to be constructed when performing in-channel construction to prevent silt- and sediment-laden water from entering the main stream flow. Accumulated sediments will be periodically removed from the catch basins.***

BIO-25 Permanent Water Diversion Projects: The Watermaster shall continue to prepare the annual Prado Basin Habitat Sustainability Monitoring Program. A second-tier CEQA evaluation shall be conducted for proposed water diversion projects associated with the OBMPU. The potential impacts to Prado Basin habitat from implementation of such diversion projects shall receive public review, including pertinent wildlife management agencies and interested parties.

Not every project will be required to implement all of the above mitigation measures. Proponents of future OBMPU projects shall select pertinent mitigation measures for the specific project site and operating impacts of the proposed project. Implementation of the project specific mitigation measures is considered adequate to minimize construction-related impacts to the extent feasible, including the potential for invasive species occupancy caused by project-related disturbance of natural areas.

4.3.8 Cumulative Impacts

Cumulative biological resource impacts can only occur when such resources are not avoided, protected or mitigated as outlined above. The mitigation requirements outlined in Section 4.3.7 are identified to ensure that biological resources are avoided or otherwise protected or mitigated, such that no cumulatively considerable impacts to significant biological resources are forecast to occur if the proposed project is implemented as analyzed in this document.

These impacts may include direct impacts such as the removal or modification of local hydrology, the redirection of flow, and the placement of fill material. Potential indirect impacts on jurisdictional waters include a number of water-quality-related impacts: erosion and transport of fine sediments or fill downstream of construction to unintentional release of contaminants into jurisdictional waters that are outside of the project footprint. Temporary impacts on jurisdictional waters include the placement of temporary fill during construction in both man-made and natural jurisdictional waters. Temporary fill could be placed during the construction of access roads and staging/equipment storage areas. The temporary fill would result in a temporary loss of jurisdictional waters and could potentially increase erosion and sediment transport into adjacent areas.

In the case of man-made features, these impacts would remove or disrupt the limited biological functions that these features provide. In natural areas, these activities would remove or disrupt the hydrology, vegetation, wildlife use, water quality conditions, and other biological functions provided by the resources. Therefore, these impacts should be quantified and analyzed in a second-tier environmental evaluation.

As stated under item (a) above, the proposed OBMPU may result in a reduction in surface flows into Prado Basin. In addition, Low Impact Development ordnances, local policies, and municipal storm water detention regulations will encourage water conservation and flow detention, resulting in a cumulative reduction in surface flows reaching Prado Basin. These cumulative flow reductions may result in reduced acreage of healthy riparian forest that supports sensitive species such as least Bell’s vireo as well as aquatic species such as Santa Ana sucker and Southern California arroyo chub. To mitigate the effects of the cumulative diversions on habitat values and conservation objectives, regional organizations such as the Santa Ana Watershed Project Authority (SAWPA) and San Bernardino Valley Water District have developed local programs and partnerships to address cumulative impacts to habitat within Prado Basin. The Chino Basin Watermaster groundwater management and monitoring efforts include provisions to maintain groundwater levels sufficient to avoid adversely affecting existing habitat that relies on groundwater; this effort will be continued under the OBMPU.

Regional Habitat Conservation Plans (HCP) are being developed that will implement projects to protect sensitive species and achieve regional habitat conservation objectives. While the OBMPU may result in surface flow diversions that would contribute to the cumulative effect, IEUA and Watermaster would continue to participate in regional planning efforts to mitigate habitat deterioration. The multi-agency coordination that presently occurs to achieve regional habitat conservation objectives aimed at protecting the habitat within Prado Basin will continue under the

OBMPU, which will ensure that a cumulatively significant reduction in surface flows would not occur.

However, there are certain areas within the overall project area of potential impact where the resource impacts from constructing new infrastructure may cause unavoidable significant adverse impacts on biological resources. These areas are highly dependent upon the final design of each Program goal, i.e. individual project, and if those actions cannot be reasonably or feasibly offset, the ultimate design of these Program improvements must be based on sound engineering. In each case where most environmental impacts cannot be fully avoided, it may be possible to avoid certain impacts by designs that avoid such impacts through sound mitigation-based planning at each step. Given the speculative nature of the locations of proposed OBMPU Project, there is a potential that an individual OBMPU facility may be developed and have operations within an area containing biological resources that cannot be avoided, even at the design level. Therefore, the program's contribution is considered cumulatively considerable, and would result in a significant or cumulatively considerable adverse impact.

4.3.9 <u>Unavoidable Adverse Impacts</u>

Because the specific locations for future OBMPU Projects are not presently known, there is a potential that a future OBMPU facility may be developed in an area containing significant biological resources that cannot be avoided. Though substantial mitigation is provided to minimize impacts under most circumstances for future OBMPU facilities, no feasible mitigation exists to completely avoid impacts to biological resources within the Chino Basin. Thus, the proposed Project is forecast to cause significant unavoidable adverse impacts to biological resources.

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4.4 CULTURAL RESOURCES

4.4.1 Introduction

This Subchapter will evaluate the environmental impacts to the issue area of cultural resources from implementation of the Optimum Basin Management Program Update (OBMPU). The following topics address whether the proposed Project would alter or destroy an historic site; cause a substantial adverse change in the significance of a historical resource as defined in California Code of Regulations, Section 15064.4; alter or destroy an archaeological site; cause a substantial adverse change in the significance of an archaeological resource pursuant to California Code of Regulations, Section 15064.4; or, disturb any human remains, including those interred outside of formal cemeteries; restrict existing religious or sacred uses within the potential impact area. The purpose of the cultural resources component of this Draft Subsequent Environmental Impact Report (SEIR) is to provide a spatial analysis of previously identified cultural resources and assess the potential for as-yet undocumented historical, archaeological, or paleontological resources to be encountered within the Chino Basin Watermaster's OBMPU Planning Area. In this way, the sensitivity for such resources to be encountered in a specific project area can be incorporated into the planning process for future statutory/regulatory compliance considerations.

"Cultural resource" is primarily a term representing the physical evidence or a place associated with past human activity. Because paleontological resources (fossil remains) can be exposed through grading, excavation, and other ground-disturbing activities, they are also considered under the cultural resource component for the purpose of this SEIR. Cultural resources can be a building, structure, site, landscape, object, or natural feature that can be characterized temporally as prehistoric or historical in origin:

- Prehistoric cultural resources are the result of cultural activities of the ancestors and predecessors of contemporary Native Americans, and often retain traditional and spiritual significance to them. Examples of prehistoric cultural resources include the archaeological remains of Native American villages and campsites; food processing, lithic resource procurement, or tool-making localities; and human burials and cremations. They may also consist of trails, rock art and geoglyphs, and isolated artifacts.
- Historical cultural resources are any human-made environmental features that provide a setting for human activity during the historic period, from the beginning of European colonization to 50 years before present (B.P.). Examples include buildings, structures, and their remains; roads, irrigation works, and other infrastructure/engineering features; and refuse deposits. They may relate to mission activities, travel and exploration, settlement and homesteading, cattle and sheep herding, mining, agriculture, industrial and commercial development, and urban/suburban expansion, among other themes. In the Chino Basin area, historical cultural resources may date to as early as the Spanish exploration period in the late 18th century.
- Paleontological resources represent the remains of prehistoric plant and animal life, exclusive of any human remains, and include the localities where fossils were collected as well as the rock formations in which they were found. Common fossil remains include marine shells; bones and teeth of fish, amphibians, reptiles, and mammals; leaf assemblages; and petrified wood. Fossil traces, another type of paleontological resource, are internal and external molds (impressions) and casts created by these organisms. Because of the infrequency of fossil preservation, they are considered nonrenewable resources. All vertebrate fossils are considered to be significant, while other kinds of

paleontological resources must be evaluated individually for significance depending on their potential scientific value.

Cultural Resource issues will be discussed below as set in the following framework:

4.4.1 Introduction
4.4.2 Environmental Setting: Cultural Resources
4.4.3 Sensitivity Assessment
4.4.4 Regulatory Setting
4.4.5 Thresholds of Significance
4.4.6 Potential Impacts
4.4.7 Unavoidable Adverse Impacts

No comments regarding cultural resources issues were raised at the public scoping meeting or as part of the Notice of Preparation.

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The following information has been prepared by CRM TECH with minor edits to fit the focus of this DSEIR.

4.4.2 <u>Environmental Setting</u>

4.4.2.1 Geology and Paleontology

The defining character of fossils or fossil deposits is their geologic age, which is typically regarded as predating the end of the Pleistocene Epoch (approximately 11,700 B.P.), but even fossils dating to the beginning of the middle Holocene Epoch, or circa 5,000 radiocarbon years B.P., may be considered paleontological resources. Fossil resources generally occur only in areas of sedimentary rock, such as sandstone, siltstone, mudstone, claystone, and shale.

A formation or rock unit has paleontological sensitivity or the potential for scientifically significant paleontological resources if it has previously yielded, or has lithologies conducive to the preservation of, vertebrate fossils and associated or regionally uncommon invertebrate and plant fossils. All sedimentary rocks, except those younger than 5,000 years, are considered to have potential for paleontological resources, as are certain extrusive volcanic rocks and mildly metamorphosed rocks.

Occasionally fossils may be exposed at the surface through the process of natural erosion or because of human disturbances, but they generally lay buried beneath the surficial soils. Thus, the absence of fossils on the surface does not preclude the possibility of their presence in subsurface deposits, while fossil remains exposed at the surface is often a good indication that more could be found subsurface.

Across the planning area, the vast majority of the surface geology is mapped as Young Alluvial Fan Deposits of Holocene to Late Pleistocene (less than 129,000 years B.P.) age, with some Very Old Alluvial Fan Deposits from the Early Pleistocene Epoch (773,000-2.58 million years B.P.). A more detailed discussion of geologic units mapped at the surface within the planning area is presented below.

4.4.2.2 Prehistory/Ethnohistory

The Chino Basin region lies mostly within the traditional territory of the Gabrielino, a Native American group believed to have been the most populous and most powerful ethnic nationality in aboriginal southern California. Gabrielino territory was centered in the Los Angeles Basin, but their influence spread as far as the San Joaquin Valley, the Colorado River, and Baja California. The Gabrielino's territorial claim in the Riverside-San Bernardino County portion of the planning area overlapped another prominent Native American group, the Serrano, whose traditional homeland was centered in the San Bernardino Mountains, including the slopes and lowlands on the northern and southern flanks of the mountains and extending eastward as far as present-day Twentynine Palms.

Depending on the natural environment in which they were located, native groups adopted different types of subsistence economy, although they were all based on gathering, hunting, and/or fishing. As a result, ancient occupation sites in valleys and foothills often contain portable mortars and pestles along with large projectile points, suggesting a reliance on fleshy nut foods and, to a lesser extent, large game animals. Sites found in the more arid areas in inland southern California often contain fragments of flat slab metates and plano-convex scrapers along with numerous projectile points, suggesting a reliance on seed resources, plant pulp, and smaller game animals. Temporary use sites tended to be clustered around bay/estuary environments and intermontane drainages such as the Santa Ana River.

The Gabrielino came into contact with the Spanish as early as 1542, during the expedition of Juan Rodríguez Cabrillo. In the early Spanish period, several Indian villages or rancherías were known to be present amid the foothills and valleys on the southern slopes of the San Gabriel and San Bernardino Mountains. Beginning in 1769, the Spaniards took steps to colonize Gabrielino territory. In the process, most of the Gabrielino people were incorporated into Mission San Gabriel and other missions in southern California.

Due to their location further inland and mostly at higher elevations, Spanish influence on Serrano lifeways was minimal until the 1810s, when an assistencia affiliated with Mission San Gabriel was established in present-day Loma Linda, on the southern edge of the Serrano territory. Between then and the end of the mission era in 1834, most of the Serrano in the San Bernardino Mountains were also moved to the nearby missions.

Due to introduced diseases, dietary deficiencies, and forceful reduction, Gabrielino and Serrano populations dwindled rapidly. By 1900, the Gabrielino had almost ceased to exist as a culturally identifiable group, according to the leading ethnohistoric accounts. The Serrano, meanwhile, were mostly settled on the San Manuel and the Morongo Indian Reservations. In modern times, there has been a renaissance of Native American activism and cultural revitalization among the

Gabrielino and the Serrano. Tribal members today are keenly aware of archaeological sites and places of special cultural significance and maintain a high level of interest in how these sites are managed.

4.4.2.2 History

In the early and mid-1770s, Francisco Garcés's exploration and the subsequent Juan Bautista de Anza expedition marked the first times when Europeans set foot in the Chino Basin area. Despite these early visits, for the next 40 years the Inland Empire region received little impact from the Spanish colonization activities in Alta California, which were concentrated mainly along the coastline. Following the establishment of Mission San Gabriel in 1771, the area became nominally a part of the vast landholdings of that mission.

After gaining independence from Spain in 1821, the Mexican government began to dismantle the mission system through the process of secularization, whereby former mission landholdings throughout Alta California were divided and granted to prominent citizens in the territory. Between 1838 and 1846, several large private ranchos were created in and around the Chino Basin, including Santa Ana del Chino, Cucamonga, Jurupa, La Sierra (Sepulveda), La Sierra (Yorba), El Rincon, and San José.

During the 1830s-1850s, the grantees and subsequent owners of some of these ranchos became the first non-natives to settle in or near the planning area. Among them were Ygnacio Palomares and Ricardo Vejar in present-day Pomona, Tiburcio Tapía in Rancho Cucamonga, Juan Bandini in Norco-Eastvale, Raimundo Yorba in the Prado Basin, and Isaac Williams in Chino. As elsewhere in southern California during the Rancho Period, cattle raising was the most prevalent economic activity on these ranchos until the influx of American settlers eventually brought an end to this now-romanticized lifestyle during the second half of the 19th century.

In the 1880s, spurred by the completion of the competing Southern Pacific and Santa Fe railways, a land boom swept through much of southern California. A large number of towns, surrounded by irrigated agricultural land, were laid out in the inland valleys before the end of the 19th century, including many in the planning area. For the rest of the 19th century and much of the 20th, the inland region remained rural in character, with agriculture as its main livelihood. After the successful introduction of the navel orange in the mid-1870s, the Chino Basin area became an important part of southern California's prosperous citrus industry.

As the area was gradually settled and developed, the different communities acquired distinctive economic and social characteristics. For example, Chino became known as the dairy capital of southern California, the present-day Rancho Cucamonga area established an identity through vineyard cultivation and winemaking, while Fontana earned a distinction for poultry, hog, and rabbit raising. Nevertheless, as in other parts of the Inland Empire, citrus cultivation remained the most important agricultural pursuit in the Chino Basin through the rest of the historic period. In 1888 and 1891, respectively, Pomona and Ontario became the first incorporated cities in the planning area.

By the mid-20th century, the forces of industrialization and urbanization began to alter the cultural landscape in the area, a change particularly well-illustrated by the establishment of the Kaiser Steel Mill in Fontana in the early 1940s. After the end of the Second World War, rapid urban expansion in the Los Angeles Basin spurred an exodus of displaced dairy farmers to the southern portion of the planning area, which contributed greatly to the establishment of milk as the leading agricultural product in both San Bernardino and Riverside Counties. In recognition of the importance of its agricultural economy, the County of San Bernardino officially designated this dairy-dominated area as an agricultural reserve.

Starting in the 1990s, however, the Chino Basin agricultural reserve was incrementally dismantled, losing the majority of its dairies and other agricultural enterprises to the ever-increasing demand for affordable housing. As elsewhere in southern California, residential and associated commercial developments have now assumed a dominant role in regional growth. As a result, the cities and communities in the planning area have essentially merged into one metropolitan area over the past few decades.

4.4.3 Sensitivity Assessment

4.4.3.1 Historical/Archaeological Resources

As a part of the cultural resource investigations for the DEIR, existing records at the appropriate repositories were consulted to identify relative concentrations of known cultural resources within the planning area. Known cultural resources are those that have been previously identified through inclusion in one or more of the following inventories: National Register of Historic Places, California Register of Historical Resources, California Historical Landmarks, California Points of Historic Interest, California Historical Resources Inventory, and the various local registers.

For the planning area, this information is maintained at the South Central Coastal Information Center (SCCIC) and the Eastern Information Center (EIC) of the California Historical Resources Information System. Located on the campuses of California State University, Fullerton, and University of California, Riverside, SCCIC and EIC are the official cultural resource records repositories for the Counties of Los Angeles and San Bernardino and for the County of Riverside, respectively.

Records searches at SCCIC and EIC indicate that roughly half of the planning area has been surveyed in the past for cultural resources and that most of these studies were concentrated in areas where urban/suburban development activities accelerated after environmental regulations were implemented in the 1970s or along major transportation corridors and other linear features of infrastructure, such as power transmission lines.

As a result of these studies, approximately 60 sites and 40 isolates—localities with fewer than three artifacts—of prehistoric origin have been reported to SCCIC and EIC, along with several hundred built-environment features, archaeological sites, and isolates of historical origin. Representing the cumulative findings of the past studies, the spatial distribution of these known cultural resources provides some insight for assessing the potential for similar resources to be present in the vicinity and helps identify areas of heightened sensitivity.

4.4.3.1.1 Prehistoric Archaeological Resources

The records search results show that the almost all of the prehistoric sites and isolates previously identified within the planning area occur in relatively concentrated clusters near sheltered areas near the base of hills or on elevated terraces, hills, and finger ridges near reliable sources of water. This distribution pattern is corroborated by the ethnographic literature that identifies such settings as the preferred settlement environment among Native Americans of the Inland Empire region. The presence of these known prehistoric sites and isolates suggest a heightened probability for similar cultural remains to be encountered in subsurface deposits at these locations.

Areas that have not been surveyed, but where sites can be reasonably expected to be found typically include those on terraces or in foothills overlooking any streams or springs. Within the planning area, the areas of heightened sensitivity includes the relatively undeveloped areas along the bases of the San Gabriel, San Bernardino, and Jurupa mountains and the Chino Hills near the Prado Basin, in the upper reaches of the mountain creeks (such as San Antonio Creek, Cucamonga/Day Creek, and San Sevaine Creek), and along the Santa Ana River.

The level, unprotected valley floor of the Chino Basin was likely used mainly for resource procurement, travel, and occasional camping during these activities. Without any reliable water sources within easy reach, most of the valley floor would not have offered a favorable setting for long-term settlement in prehistoric times. Furthermore, these areas have been subject to extensive and sometimes repeated development activities over the past 150 years, especially since the mid-20th century, and the ground surface has been heavily disturbed, thus reducing the sensitivity for subsurface cultural remains from the prehistoric period.

In summary, the geomorphologic setting and the extent of past ground disturbances suggest that most of the valley floor at lower elevations in the planning area is unlikely to contain potentially significant archaeological deposits of prehistoric origin. Existing archaeological records at SCCIC and EIC appear to support this overall sensitivity assessment.

4.4.3.1.2 Historic-Period Archaeological Resources and Built-Environment Features

Records at SCCIC and EIC demonstrate that throughout the planning area there is significant potential for encountering historic-period cultural resources dating at least to the late 19th century, and in some cases as early as the 1830s. Not surprisingly, known historic-period sites are noticeably concentrated around early settlements, such as the downtown areas of the various communities, and along major transportation routes. The distribution complements the demonstrated pattern of development over the past 200 years, as demonstrated by the shifting land uses discussed above and by historical maps and aerial photographs of the Chino Basin area.

The older urban cores of the communities in the planning area, therefore, generally demonstrate higher levels of sensitivity than large tracts of formerly rural land used in agriculture and dairy production, such as those being increasingly developed into suburban residential neighborhoods, warehouse complexes, and shopping centers in recent decades. Common sites to be expected include essentially all types of buildings and structures from the late 19th and to the mid-20th centuries, structural remains, historic landscapes, refuse deposits, irrigation works, and other infrastructure features such as power transmission lines, roads, and railroads.

While most of the roads in the older neighborhoods are now more than 50 years old, typically they are unlikely to be considered historically significant due to the lack of integrity resulting from modern upgrading and maintenance. Some of the roads, however, deserve special attention in this respect in light of their unique historic association and design character, such as Euclid Avenue, Foothill Boulevard (formerly U.S. Route 66), Valley Boulevard (formerly U.S. Route 70/99), Mission Boulevard (formerly U.S. Route 60), and Baseline Road/Avenue, which is notable more as the physical representation of the San Bernardino Baseline than for the road itself.

4.4.3.2 Paleontological Resources

A recent map showing the surface geology in the planning area is presented in Figure 4.4-1. On the map, the bright, multi-colored areas to the north, west, and southeast represent the nearby mountains and hills. The geologic formations in those areas generally consist of granitic and other intrusive crystalline rocks of all ages or Cretaceous and Pre-Cretaceous metamorphic formations of sedimentary and volcanic origin, which have a low sensitivity of containing paleontological resources. The dark brown areas in the planning areas (Figure 4.4-1) indicate the presence of artificial fill soil on the surface, which also has a low sensitivity for paleontological resources. Additionally, sediments within the Santa Ana River channel and its flood plain, consisting of young and very young wash deposits, are very low in sensitivity. Any paleontological resources that may be found in these sediments would have been transported from some other location and, as such, would not have any contextual integrity.

The vast majority of the planning area is covered by Young Alluvial Fan Deposits (the grayish *Qyf3* and *Qyf3a* and the yellowish *Qyf1*, *Qyf4*, *Qyf5*, *Qf*, and *Qf2* in Figure 4.4-1) and Young aeolian deposits (the greenish-yellow *Qye*). The aeolian, or wind-blown, deposits are not likely to contain any significant paleontological resources. The Young Alluvial Fan Deposits may date from the Late Pleistocene to the Early Holocene. The younger, Holocene sediments (less than 11,700 years old) in this geologic unit are generally present on the surface, and are not old enough to contain significant paleontological resources. The thickness of this Holocene alluvium is expected to vary significantly in different parts of the planning area, and older, paleontologically sensitive Pleistocene alluvium may underly these younger surficial sediments. Excavations in these soils, therefore, may reach the paleontologically sensitive soils below the recent alluvium and impact significant paleontological resources.

There are a few small areas in the planning area where Very Old Alluvial Fan Deposits, dating to the Early Pleistocene Epoch, are present on the surface. These sediments typically have a high potential to contain nonrenewable paleontological resources and are considered to be highly sensitive for paleontological resources. Similar deposits elsewhere in southern California have yielded scientifically significant fossils of plants and animals from the Pleistocene Epoch, including mammoths, mastodons, ground sloths, dire wolves, short-faced bears, saber-toothed cats, horses, camels, and bison. Consequently, the potential of finding vertebrate fossils where Pleistocene-age alluvial sediments are encountered is moderate to high. Based on the mapped surface geology and/or previous fossil finds, conditions favorable for fossil preservation occur within the planning area at the following five locations:

- A small area near the Rancho Cucamonga Creek, north of Foothill Boulevard ($Qvof_1$).
- Close to the Santa Ana River, southwest of Van Buren Boulevard and the Jurupa Mountains (Qoa_a, *Qof*, Qof_{1a}, $Qvoa_a$, Qvo_{3a}, and $Qvof_a$).
- Non-igneous portions of the Jurupa Mountains, specifically two areas on the north side ($Qvof_1$ and $Qvof_3$).
- In Chino Hills, north of Chino Hills Parkway and west of State Route 71 ($Qvof_a$).
- Areas in and around the Prado Basin, generally east of State Route 71, west of Hellman Avenue, north of the Santa Ana River, and south of Merrill Avenue. This large area of older alluvium from the Pleistocene Epoch ($Qvof_a$, Qvo_a, and *Qvof*) is assigned high paleontological sensitivity beginning at the surface, particularly on the terraces adjacent to the Prado Dam and the non-ponded areas behind the dam. During previous studies, the Natural History Museum of Los Angeles County (NHMLAC) and the San Bernardino County Museum (SBCM) identified a fossil vertebrate locality from sediment lithologies

similar to those that may occur as subsurface deposits at this location. Both museums consider the Prado Dam area to be of high paleontological sensitivity.

4.4.4 Regulatory Setting

The cultural resources component of this SEIR is prepared to address planned water supply, wastewater treatment, and recycled water management activities in the Chino Basin, including construction of new facilities and associated structures, modification to existing facilities, pipeline installation, and other earth-moving operations. The location of potential projects range between well-defined to relatively uncertain at this time, but the various components will occur in commercial, industrial, and residential areas in the communities within the planning area.

Activities requiring excavation or movement of soil material at any location within the planning area have potential to adversely affect cultural resources. In most cases, however, pipelines will be installed along existing roadways and public rights-of-way where development has already occurred, thus the chances of uncovering previously unidentified cultural resources are diminished. During desalter, well, and basin construction, the chances of encountering cultural resources are greater than along existing roadways, but the actual potential of discovery at each location is substantially different and highly site-specific.

The impact assessment presented below focuses on physical changes to the landscape at a project site and any potential adverse impacts these changes may have on any historical, archeological, or paleontological resources that exist at the site. For purposes of the impacts, it is assumed that all projects will be approved and implemented as proposed and described in the Project Description in this document.

4.4.4.1 Federal

National Historic Preservation Act

Cultural resources are protected through the National Historic Preservation Act (NHPA) of 1966, as amended (54 United States Code [U.S.C.] 300101 et seq.), and the implementing regulations, Protection of Historic Properties (36 Code of Federal Regulations [CFR] Part 800), the Archaeological and Historic Preservation Act of 1974, and the Archaeological Resources Protection Act of 1979. Prior to implementing an “undertaking” (e.g., issuing a federal permit), the NHPA (54 U.S.C. 306108) requires federal agencies to consider the effects of the undertaking on historic properties and to afford the Advisory Council on Historic Preservation and the State Historic Preservation Officer (SHPO) a reasonable opportunity to comment on any undertaking that would adversely affect properties eligible for listing in the National Register of Historic Places (NRHP). Under the NHPA, properties of traditional religious and cultural importance to a Tribe are eligible for inclusion in the NRHP (54 U.S.C. 302706). Also, under the NHPA, a resource is considered significant if it meets the NRHP listing criteria at 36 CFR 60.4.

National Register of Historic Places

The National Register of Historic Places (National Register) was established by the NHPA of 1966, as “an authoritative guide to be used by federal, State, and local governments, private groups and citizens to identify the Nation’s historic resources and to indicate what properties should be considered for protection from destruction or impairment” (Code of Federal Regulations [CFR] 36 Section 60.2). The National Register recognizes both historical-period and prehistoric archaeological properties that are significant at the national, state, and local levels. In the context of the project, which does not involve any historical-period structures, the following National Register criteria are given as the basis for evaluating archaeological resources.

To be eligible for listing in the National Register, a resource must be significant in American history, architecture, archaeology, engineering, or culture. Districts, sites, buildings, structures, and objects of potential significance must meet one or more of the following four established criteria (U.S. Department of the Interior, 1995):

- Are associated with events that have made a significant contribution to the broad patterns of our history;
- Are associated with the lives of persons significant in our past;
- Embody the distinctive characteristics of a type, period, or method of construction or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- Have yielded, or may be likely to yield, information important in prehistory or history.

Unless the property possesses exceptional significance, it must be at least fifty years old to be eligible for National Register listing (U.S. Department of the Interior, 1995).

In addition to meeting the criteria of significance, a property must have integrity. Integrity is defined as “the ability of a property to convey its significance” (U.S. Department of the Interior, 1995). The National Register recognizes seven qualities that, in various combinations, define integrity. To retain historic integrity a property must possess several, and usually most, of these seven aspects. Thus, the retention of the specific aspects of integrity is paramount for a property to convey its significance. The seven factors that define integrity are location, design, setting, materials, workmanship, feeling, and association.

4.4.4.2 State

The State implements the NHPA through its statewide comprehensive cultural resource surveys and preservation programs. The California Office of Historic Preservation (OHP), as an office of the California Department of Parks and Recreation, implements the policies of the NHPA on a statewide level. The OHP also maintains the California Historic Resources Inventory. The State Historic Preservation Officer (SHPO) is an appointed official who implements historic preservation programs within the State’s jurisdictions.

California Register of Historical Resources

The California Register of Historical Resources (California Register) is “an authoritative listing and guide to be used by State and local agencies, private groups, and citizens in identifying the existing historical resources of the State and to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change.” (California Public Resources Code § 5024.1[a]). The criteria for eligibility for the California Register are based upon National Register criteria (California Public Resources Code § 5024.1[b]). Certain resources are determined by the statute to be automatically included in the California Register, including California properties formally determined eligible for, or listed in, the National Register.

- To be eligible for the California Register, a prehistoric or historical-period property must be significant at the local, State, and/or federal level under one or more of the following criteria:
- Is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage;
- Is associated with the lives of persons important in our past;

- Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
- Has yielded, or may be likely to yield, information important in prehistory or history.

A resource eligible for the California Register must meet one of the criteria of significance described above, and retain enough of its historic character or appearance (integrity) to be recognizable as a historical resource and to convey the reason for its significance. It is possible that a historic resource may not retain sufficient integrity to meet the criteria for listing in the National Register, but it may still be eligible for listing in the California Register.

Additionally, the California Register consists of resources that are listed automatically and those that must be nominated through an application and public hearing process. The California Register automatically includes the following:

- California properties listed on the National Register and those formally Determined Eligible for the National Register;
- California Registered Historical Landmarks from No. 770 onward; and,
- Those California Points of Historical Interest that have been evaluated by the OHP and have been recommended to the State Historical Commission for inclusion on the California Register.

Other resources that may be nominated to the California Register include:

- Historical resources with a significance rating of Category 3 through 5 (Those properties identified as eligible for listing in the National Register of Historic Places, the California Register, and/or a local jurisdiction register);
- Individual historical resources;
- Historical resources contributing to historic districts; and,
- Historical resources designated or listed as local landmarks, or designated under any local ordinance, such as an historic preservation overlay zone.

California Historic Landmarks

California Historical Landmarks (CHLs) are buildings, structures, sites, or places that have anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other value and that have been determined to have statewide historical significance by meeting at least one of the criteria listed below. The resource also must be approved for designation by the County Board of Supervisors (or the city or town council in whose jurisdiction it is located); be recommended by the State Historical Resources Commission; and be officially designated by the Director of California State Parks. The specific standards now in use were first applied in the designation of CHL #770. CHLs #770 and above are automatically listed in the CRHR.

To be eligible for designation as a landmark, a resource must meet at least one of the following criteria:

- It is the first, last, only, or most significant of its type in the state or within a large geographic region (Northern, Central, or Southern California);
- It is associated with an individual or group having a profound influence on the history of California; or
- It is a prototype of, or an outstanding example of, a period, style, architectural movement or construction or is one of the more notable works or the best surviving work in a region of a pioneer architect, designer, or master builder.

California Points of Historical Interest

California Points of Historical Interest (PHI) are sites, buildings, features, or events that are of local (city or county) significance and have anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other value. PHI designated after December 1997 and recommended by the State Historical Resources Commission are also listed in the CRHR. No historic resource may be designated as both a landmark and a point. If a point is later granted status as a landmark, the point designation will be retired. In practice, the point designation program is most often used in localities that do not have a locally enacted cultural heritage or preservation ordinance.

To be eligible for designation as a PHI, a resource must meet at least one of the following criteria:

- It is the first, last, only, or most significant of its type within the local geographic region (city or county);
- It is associated with an individual or group having a profound influence on the history of the local area; or
- It is a prototype of, or an outstanding example of, a period, style, architectural movement or construction or is one of the more notable works or the best surviving work in the local region of a pioneer architect, designer, or master builder.

California Environmental Quality Act

Under CEQA (Public Resources Code [PRC] Section 21084.1), a project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment. State CEQA Guidelines Section 15064.4 defines a historical resource as: (1) a resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the CRHR; (2) a resource included in a local register of historical resources, as defined in Public Resources Code (PRC) Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g); and (3) any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California by the lead agency, provided the lead agency's determination is supported by substantial evidence in light of the whole record. The fact that a resource does not meet the three criteria outlined above does not preclude the lead agency from determining that the resource may be an historical resource as defined in PRC Sections 5020.1(j) or 5024.1.

As described by PRC Section 21084.1 and Section 15064.4 of the State CEQA Guidelines, should a project cause a substantial adverse change (defined as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired) in the significance of an historical resource, the lead agency must identify potentially feasible measures to mitigate these effects (State CEQA Guidelines Sections 15064.4(b)(1) and 15064.4(b)(4)).

Archaeological resources are defined in CEQA Section 21083.2, which states that a "unique" archaeological resource is an archaeological artifact, object, or site that has a high probability of meeting any of the following criteria:

- Contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information.
- Has a special and particular quality such as being the oldest of its type or the best available example of its type.

- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Unique archaeological resources as defined in Section 21083.2 may require reasonable efforts to preserve resources in place (Section 21083.1(a)). If preservation in place is not feasible, mitigation measures shall be required. Additionally, the State CEQA Guidelines state that if an archaeological resource is neither a unique archaeological nor a historical resource, the effects of the project on those resources shall not be considered a significant effect on the environment (State CEQA Guidelines Section 15064.4(c)(4)).

California Health and Safety Code Section 7050.5

California Health and Safety Code Section 7050.5 requires, in the event human remains are discovered, that all ground disturbances must cease and the County Coroner must be contacted to determine the nature of the remains. In the event the remains are determined to be Native American in origin by the Coroner, the Coroner is required to contact the Native American Heritage Commission (NAHC) within 24 hours to relinquish jurisdiction.

California Public Resources Code Section 5097.98

Section 5097.98, as amended by Assembly Bill 2641, provides procedures in the event human remains of Native American origin are discovered during project implementation. Section 5097.98 requires that no further disturbances occur in the immediate vicinity of the discovery, that the discovery is adequately protected according to generally accepted cultural and archaeological standards, and that further activities take into account the possibility of multiple burials. Section 5097.98 further requires the NAHC, upon notification by a County Coroner, designate and notify a Most Likely Descendant (MLD) regarding the discovery of Native American human remains. Once the MLD has been granted access to the site by the landowner and inspected the discovery, the MLD then has 48 hours to provide recommendations to the landowner for the treatment of the human remains and any associated grave goods.

In the event that no descendant is identified, or the descendant fails to make a recommendation for disposition, or if the land owner rejects the recommendation of the descendant, the landowner may, with appropriate dignity, reinter the remains and burial items on the property in a location that will not be subject to further disturbance.

Paleontological Resources

Section 5097.5 of the PRC specifies that any unauthorized removal of paleontological remains is a misdemeanor. Further, the California Penal Code Section 622.5 sets the penalties for the damage or removal of paleontological resources.

4.4.5 <u>Thresholds of Significance</u>

4.4.5.1 Historic and Archaeological Resources

The California Environmental Quality Act (CEQA) establishes that a project that may cause a substantial adverse change in the significance of a “historical resource” or a “tribal cultural resource” is a project that may have a significant effect on the environment (PRC §21084.1-2). Similarly, CEQA guidelines (Title 14 CCR App. G, Sec. V(c)) require that public agencies in the State of California determine whether a proposed project would “directly or indirectly destroy a unique paleontological resource” during the environmental review process.

According to PRC §5020.1(j), “historical resource” includes, but is not limited to, any object, building, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California." More specifically, CEQA guidelines state that the term "historical resources" applies to any such resources listed in or determined to be eligible for listing in the California Register of Historical Resources, included in a local register of historical resources, or determined to be historically significant by the Lead Agency (Title 14 CCR §15064.4(a)(1)-(3)).

Regarding the proper criteria of historical significance, CEQA guidelines mandate that "a resource shall be considered by the lead agency to be 'historically significant' if the resource meets the criteria for listing on the California Register of Historical Resources" (Title 14 CCR §15064.4(a)(3)). A resource may be listed in the California Register if it meets any of the following criteria:

(1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
(2) Is associated with the lives of persons important in our past.
(3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
(4) Has yielded, or may be likely to yield, information important in prehistory or history. (PRC §5024.1(c))

4.4.5.2 Significance Thresholds

The thresholds analyzed in this section are derived from Appendix G of the CEQA Guidelines, and are used to determine the level of potential effect. The significance determination is based on the recommended criteria set forth in Section 15064.4 of the CEQA Guidelines. For analysis purposes, implementation of the OBMPU would have a significant effect on cultural resources if it is determined that the project would:

CUL-1. Would the project cause a substantial adverse change in the significance of a historical resource as defined in 15064.4.?
CUL-2. Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to 15064.4.?
CUL-3. Disturb any human remains, including those interred outside of formal cemeteries.

Additionally, this section further analyzes the impacts related to Geology and Soils, which were discussed in the Initial Study—provided as part of the Notice of Preparation (NOP), located in Subchapter 8.1 of this document; the significance determination has not changed for this issue; however, additional mitigation has been provided that applies to paleontological resources. For analysis purposes, implementation of the OBMPU would have a significant effect on paleontological resources if it would:

GEO-6. Would the project cause a substantial adverse change in the significance of a historical resource as defined in 15064.4?

4.4.6 <u>Potential Impacts</u>

The following issues from the Initial Study Form will be addressed for potential significance of cultural resource effects:

CUL-1. Would the project cause a substantial adverse change in the significance of a historical resource as defined in 15064.4.?
CUL-2. Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to 15064.4.?
GEO-6. Would the project cause a substantial adverse change in the significance of a historical resource as defined in 15064.4?

Based on the sensitivity assessment presented in the sections above, implementation of specific projects in the planning area could encounter historical, archaeological, and paleontological resource and cause a significant impact on them. All future OBMPU projects that may impact historical, archaeological, or paleontological resources in the planning area shall be subject to focused studies that cover the entire area of potential effects for each project, including any significant indirect effects. As dictated by the findings above, multiple phases of studies may be necessary to properly identify and evaluate potential cultural resources, mitigate project effects on any significant resources, and protect buried archaeological or paleontological remains against inadvertent disturbances.

Project Category 1: Well Development and Monitoring Devices (PEs 1-9)
This Project Category includes the development of ASR, injection, pumping, groundwater level monitoring, and groundwater quality wells, associated well housing, as well as monitoring devices such as flow meters and extensometers. The proposed wells and monitoring devices will be installed throughout the Chino Basin.

Since the proposed project is at the programmatic level, specific locations for the proposed wells have not been have yet to be determined. As such, impacts to specific historical, archaeological, and paleontological resources are speculative. Previously unknown and unrecorded cultural resources may be unearthed during excavation and grading activities for individual projects. If previously unknown potentially unique buried archaeological or paleontological resources are uncovered during excavation or construction, significant impacts could occur. Therefore, mitigation will be implemented that would require site-specific studies to identify potentially significant historical, archaeological, and paleontological resources. Additional studies would minimize potential impacts to historical, archaeological, and paleontological resources.

Where a future OBMPU project is proposed within an existing facility that has been totally disturbed due to it undergoing past engineered site preparation (such as a well site or water treatment facility site), the agency implementing the OBMPU project will not be required to complete a follow on cultural resources report (Phase I Cultural Resources Investigation). However, mitigation below addresses the requirement that future OBMPU projects within existing facilities that have been totally disturbed that require state funding must complete a Phase I Cultural Resources Investigation because the state requires such studies to be completed in order to be eligible for state funding.

Future OBMPU Projects that are located within undisturbed areas, regardless of whether the Implementing Agency intends to seek state funding, will require a follow on Phase I Cultural Resources Investigation. Further mitigation measures are provided below that address the potential for multiple phases of studies that may be necessary to properly identify and evaluate potential cultural resources for a given OBMPU Project.

In light of the probability for the involvement of federal funding or permits, it is anticipated that many future projects will require consultation with—and concurrence from—the California State Historic Preservation Officer (SHPO) regarding the adequacy of research procedures implemented during project-specific cultural resources studies and the appropriateness of the findings and conclusions under Section 106 of the National Historic Preservation Act. Given the extended timeframe of OBMPU and the large number of projects it will entail, the local agencies participating in the OBMPU will, through mitigation provided below, collectively establish a programmatic agreement with SHPO to stipulate a set of mutually accepted guidelines on research procedures and the types of potential cultural resources that may be excluded from further consideration before OBMPU Projects are implemented.

It can be anticipated that projects proposed under OBMPU may involve modifications to or may otherwise encounter common infrastructure features that are more than 50 years of age, but have a low potential to be considered historically significant, such as existing roadways and minor, utilitarian structures serving as pumphouses or reservoirs, as well as numerous historic-period buildings that are adjacent to the project boundaries but are unlikely to receive any direct or indirect impact. The aforementioned programmatic agreement would outline the proper treatment of such properties in future project-specific studies, which will greatly streamline the design and completion of such studies, facilitate the SHPO review process, and minimize potential project delays.

Project Category 2: Conveyance Facilities and Ancillary Facilities (PEs 2, 4-9)
This category includes the construction of 550,000 LF of new pipelines, booster pump stations, reservoirs and minor appurtenances whose number. The proposed conveyance facilities and ancillary facilities would be implemented throughout the entire Chino Basin.

Impacts would be the same as Project Category 1.

Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands (PEs 2, 4-5, 8/9)
This Project Category includes the construction of 310 acres of new storage basins—several locations for which are within existing facilities, improvements to existing storage basin(s), 200 acres of flood MAR facilities, new MS4-compliance facilities, and expansion of the maximum storage space (safe storage capacity) to be used within the Chino Basin from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af between this range of storage. The specific locations of the storage basins are described in the Project Description above; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

Impacts would be the same as Project Category 1 and 2.

Project Category 4: Desalters and Water Treatment Facilities (PEs 2, 4-9)
The projects proposed under this category are: upgrades at IEUA's existing Treatment Plants (discussed in IEUA's 2017 FMP PEIR), a new advanced water treatment plant (discussed in IEUA's 2017 FMP PEIR), improvements to the WFA Agua de Lejos Treatment Plant, upgrades to the Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities. Cultural Resource impacts related to the facilities thoroughly analyzed as part of the IEUA's 2017 FMP PEIR will not be analyzed further as part of this DSEIR.

Impacts would be the same as Project Category 1-3.

Combined Project Categories

Level of Significance Before Mitigation: Potentially Significant

Mitigation Measures:

CUL-1: ***Where a future discretionary project requiring a Negative Declaration or follow-on EIR is proposed within an existing facility that has been totally disturbed due to it undergoing past engineered site preparation (such as a well site or water treatment facility site), the agency implementing the OBMPU project will not be required to complete a follow on cultural resources report (Phase I Cultural Resources Investigation) <u>unless</u> the Implementing Agency is seeking State funding, in which case the Implementing Agency must prepare a Phase I Cultural Resources Investigation to satisfy State CEQA-plus requirements.***

Where a Phase I Cultural Resources Investigation is not required, the following shall be required to minimize impacts to any accidentally exposed cultural resource materials:

- ***Should any cultural resources be encountered during construction of these facilities, earthmoving or grading activities in the immediate area of the finds shall be halted and an onsite inspection shall be performed immediately by a qualified archaeologist. Responsibility for making this determination shall be with the Implementing Agency's onsite inspector. The archaeological professional shall assess the find, determine its significance, and make recommendations for appropriate mitigation measures within the guidelines of the California Environmental Quality Act.***

CUL-2: ***Where a future discretionary project requiring a Negative Declaration or follow-on EIR is proposed within an undisturbed site <u>and/or</u> a site that will require substantial earthmoving activities and/or excavation, <u>and/or</u> the Implementing Agency is seeking State funding, the agency implementing the OBMPU project shall complete a follow on cultural resources report (Phase I Cultural Resources Investigation) regardless of whether the Implementing Agency is seeking State funding.***

Where a Phase I Cultural Resources Investigation is required, the following phases of identification, evaluation, mitigation, and monitoring shall be followed for a given OBMPU Project:

1. ***<u>Phase I (Identification)</u>: A Phase I Investigation to identify historical, archaeological, or paleontological resources in a project area shall include the following research procedures, as appropriate:***
    - ***Focused historical/archaeological resources records searches at SCCIC and/or EIC, depending on the project location, and paleontological resources records searches by NHMLAC, SBCM, and/or the Western Science Center in Hemet;***
    - ***Historical background research, geoarchaeological profile analysis, and paleontological literature review;***
    - ***Consultation with the State of California Native American Heritage Commission, Native American tribes in the surrounding area, pertinent local government agencies, and local historic preservation groups;***
    - ***Field survey of the project area by qualified professionals of the pertinent discipline and at the appropriate level of intensity as***

determined on the basis of sensitivity assessment and site conditions;
- ***Field recordation of any cultural resources encountered during the survey and proper documentation of the resources for incorporation into the appropriate inventories or databases.***

2. ***<u>Phase II (Evaluation)</u>: If cultural resources are encountered in a project area, a Phase II investigation shall be required to evaluate the potential significance of the resources in accordance with the statutory/regulatory framework outlined above. A typical Phase II study consists of the following research procedures:***
   - ***Preparation of a research design to discuss the specific goals and objectives of the study in the context of important scientific questions that may be addressed with the findings and the significance criteria to be used for the evaluation, and to formulate the proper methodology to accomplish such goals;***
   - ***In-depth exploration of historical, archaeological, or paleontological literature, archival records, as well as oral historical accounts for information pertaining to the cultural resources under evaluation;***
   - ***Fieldwork to ascertain the nature and extent of the archaeological/paleontological remains or resource-sensitive sediments identified during the Phase I study, such as surface collection of artifacts, controlled excavation of units, trenches, and/or shovel test pits, and collection of soil samples;***
   - ***Laboratory processing and analyses of the cultural artifacts, fossil specimens, and/or soil samples for the proper recovery, identification, recordation, and cataloguing of the materials collected during the fieldwork and to prepare the assemblage for permanent curation, if warranted.***

3. ***<u>Phase III (Mitigation)</u>: For resources that prove to be significant under the appropriate criteria, mitigation of potential project impact is required. Depending on the characteristics of each resource type and the unique aspects of significance for each individual resource, mitigation may be accomplished through a variety of different methods, which shall be determined by a qualified archaeologist, paleontologist, historian, or other applicable professional in the "cultural resources" field. Typical mitigation for historical, archaeological, or paleontological resources, however, may focus on the following procedures, aimed mainly at the preservation of physical and/or archival data about a significant cultural resource that would be impacted by the project:***
   - ***Data recovery through further excavation at an archaeological site or a paleontological locality to collect a representative sample of the identified remains, followed by laboratory processing and analysis as well as preparation for permanent curation;***
   - ***Comprehensive documentation of architectural and historical data about a significant building, structure, or object using methods comparable to the appropriate level of the Historic American Buildings Survey (HABS) and the Historic American Engineering Record (HAER) for permanent curation at a repository or repositories that provides access to the public;***
   - ***Adjustments to project plans to minimize potential impact on the significance and integrity of the resource(s) in question.***

4. ***<u>Phase III (Monitoring)</u>: At locations that are considered sensitive for subsurface deposits of undetected archaeological or paleontological remains, all earth-moving operations shall be monitored continuously or periodically, as warranted, by qualified professional practitioners.***

Archaeological monitoring programs shall be coordinated with the nearest Native American groups, who may wish to participate.

CUL-3: After each phase of the studies required by mitigation measure CUL-2 has been completed, where required, a complete report on the methods, results, and final conclusions of the research procedures shall be prepared and submitted to SCCIC, EIC, NHMLAC, and/or SBCM, as appropriate and in addition to the lead agency for the project, for permanent documentation and easy references by future researchers.

CUL-4: Prior to construction of OBMPU related facilities, the Watermaster and IEUA shall confer with the Parties to establish a programmatic agreement with SHPO that will stipulate a set of mutually accepted guidelines that address research procedures and the types of potential cultural resources that may be excluded from further consideration before OBMPU Projects are implemented, such as common infrastructure features that are more than 50 years of age, but have a low potential to be considered historically significant, such as existing roadways and minor, utilitarian structures serving as pumphouses or reservoirs, as well as numerous historic-period buildings that are adjacent to the project boundaries but are unlikely to receive any direct or indirect impact. Once this agreement has been made with SHPO, Watermaster shall retain the agreement in the Project file, and shall ensure that all Stakeholder Parties are given copies of the agreement for reference on future OBMPU Projects.

Level of Significance After Mitigation: Less Than Significant

Mitigation Measure **CUL-1** would exclude highly disturbed sites from requiring further cultural resource evaluation, unless the Implementing Agency is seeking state funding for the project. Furthermore, Mitigation Measure **CUL-1** would require the Implementing Agency to adhere to procedures pertaining treatment of cultural resources that may be accidentally discovered during earthmoving activities.

Mitigation Measure **CUL-2** would ensure that future OBMPU Projects that are located within undisturbed areas, within a site that will require substantial earthmoving activities and/or excavation, and/or the Implementing Agency is seeking State funding, will require a follow on Phase I Cultural Resources Investigation. This mitigation measure includes several phases or steps beyond the completion of a Phase I Cultural Resources Investigation that would cover the identification, evaluation, mitigation, and monitoring associated with a given project where resources may be located. This would ensure that adequate mitigation is provided in the event that significant cultural resources are located within a given OBMPU Project site.

Mitigation Measure **CUL-3** would ensure that, after each phase of the studies required by mitigation measure **CUL-2** has been completed, where required, a complete report on the methods, results, and final conclusions of the research procedures is prepared and submitted to SCCIC, EIC, NHMLAC, and/or SBCM. This would ensure that any discoveries are properly documented for future researchers that may seek information in the OBMPU Project area.

Finally, Mitigation Measure **CUL-4** would set a precedent for future OBMPU Projects that would streamline the design and completion of future Phase I Cultural Resources Investigations. This precedent would stipulate beforehand a set of mutually accepted guidelines on research procedures and the types of potential cultural resources that may be excluded from further consideration. This programmatic agreement would ease future collaborations with SHPO for

OBMPU Projects, thereby ensuring resources are properly treated and ensuring efficiency for future development.

Cumulative Impact Analysis

Level of Significance Before Mitigation: Potentially Significant

As the service area continues to develop with projected growth, new residential, commercial, and industrial developments would occur. The project vicinity contains many historical, archaeological, and paleontological resources that, in many cases, have not been well documented or recorded. Thus, there is the potential for ongoing and future development projects in the vicinity to destroy known or unknown historical, archaeological, and paleontological resources resource sites.

The potential construction impacts of the project, in combination with other projects as a result of growth in the area, could contribute to a cumulatively significant impact specific historical, archaeological, and paleontological resources. Therefore, the project’s cumulative effects to specific historical, archaeological, and paleontological resources would be cumulatively considerable and cumulative impacts would be potentially significant. However, mitigation measures **CUL-1** through **CUL-4** would minimize cumulative impacts to a level of less than significant.

Level of Significance After Mitigation: Less Than Significant

CUL-4. Would the Project disturb any human remains, including those interred outside of formal cemeteries?

Combined Project Categories

Since the proposed project is at the programmatic level, specific project locations and design elements have yet to be finalized for a majority of the OBMPU Projects. Given the large size of the Chino Basin, there is a potential that a given OBMPU Project site could be located in a sensitive area. As such, in the event that human remains are inadvertently discovered during project construction activities, the human remains could be inadvertently damaged, which could result in a significant impact. Implementation of the proposed project would comply with provisions of state law regarding discovery of human remains, including PRC Section 5097.98 and Health and Safety Code Section 7050.5. If human remains are accidentally exposed during site grading, Section 7050.5 of the California Health and Safety Code requires a contractor to immediately stop work in the vicinity of the discovery and notify the County Coroner. The Coroner must then determine whether the remains are human and if such remains are human, the Coroner must determine whether the remains are or appear to be of a Native American origin. If deemed potential Native American remains, the Coroner contacts the Native American Heritage Commission (NAHC) to identify the most likely affected tribe and/or most likely descendant. Until the landowner has conferred with the MLD, the Watermaster or Implementing Agency shall ensure that the immediate vicinity where the discovery occurred is not disturbed by further activity, is adequately protected according to generally accepted cultural or archaeological standards or practices, and that further activities consider the possibility of multiple burials. Since this process is mandatory, no additional mitigation is required to ensure that the impacts to human remains will be less than significant.

Level of Significance Before Mitigation: Less Than Significant

Mitigation Measures: None Required

Level of Significance After Mitigation: Less Than Significant

Cumulative Impact Analysis

Level of Significance Before Mitigation: Less Than Significant

The Chino Basin area is largely urbanized with residential, commercial, and industrial development, though many areas still exist that have not historically been disturbed at depth, such as agricultural sites. As the area continues to develop, it is possible, but unlikely, that construction activities could impact unknown human remains. However, since the treatment of human resources is governed by Public Resources Code Section 5097.98 and Health and Safety Code Section 7050.5, the cumulative potential to impact human remains would be less than significant. Therefore, the implementation of the project would result in less than cumulatively considerable impacts to human remains.

Level of Significance After Mitigation: Less Than Significant

4.4.7 Unavoidable Adverse Impacts

Based on the information presented above, all potential cultural resource impacts would be limited and can be mitigated to a less than significant impact level. As a result, there will not be any unavoidable project specific or cumulative adverse impacts to cultural resources from implementing the Project as proposed. The project cultural resource impacts are less than significant.

FIGURE 4.4-1

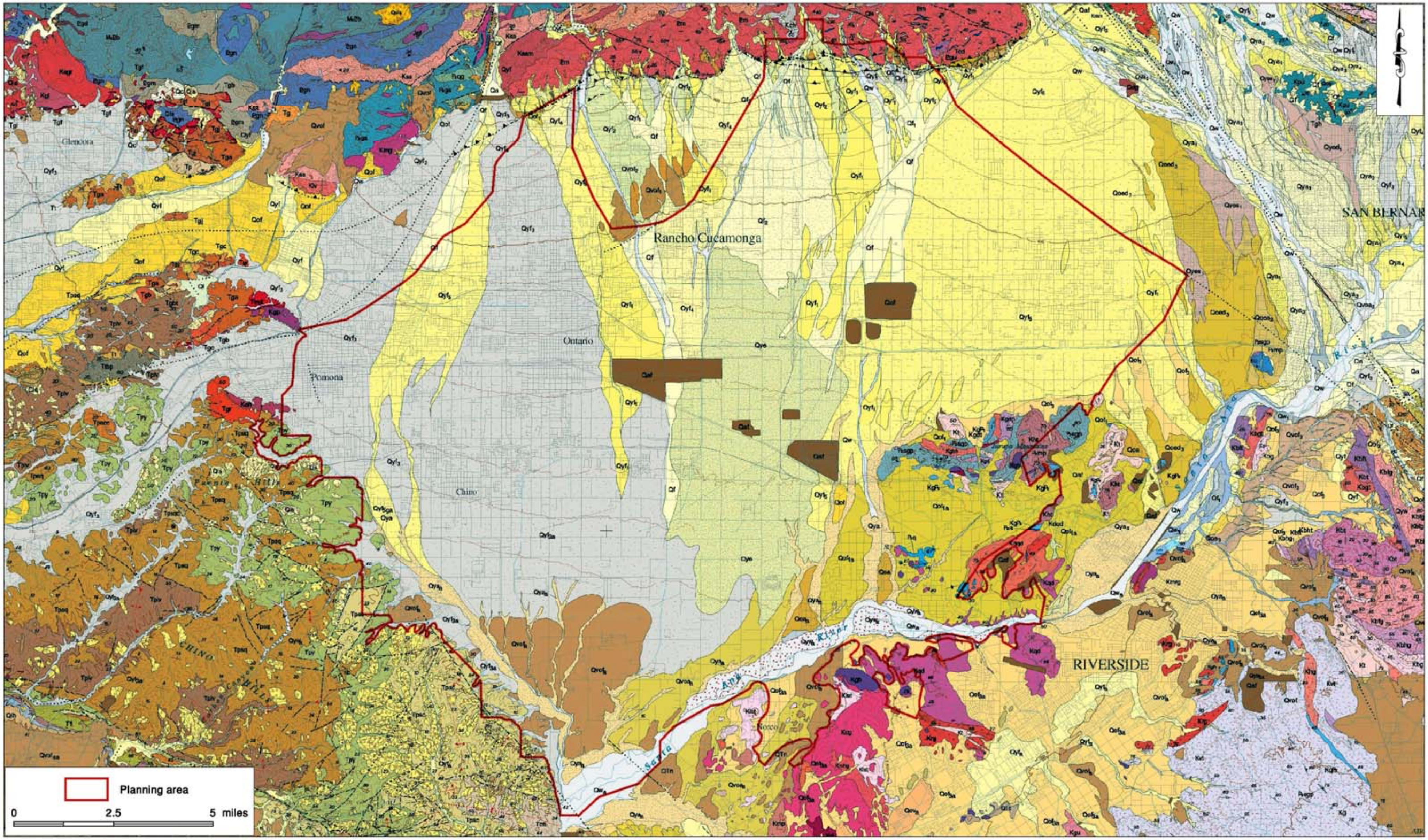


Figure 1. Surface geology in the planning area. Source: D.M. Morton and F.K. Miller: Geologic Map of the San Bernardino and Santa Ana 30'x 60' Quadrangles, California (U.S. Geological Survey 2006).

4.5 ENERGY

4.5.1 Introduction

The *2020 Optimum Basin Management Program Update Energy Analysis Chino Basin Watermaster* dated March 20, 2020 (EA) was prepared by Urban Crossroads to evaluate the potential impacts to energy associated with construction and operation of the facilities proposed as part of the Optimum Basin Management Program Update (OBMPU) Draft Subsequent EIR (DSEIR). A copy of the EA is provided as Appendix 4 of Volume 2 of this DSEIR. Much of the information provided in the following sections is abstracted directly from this technical report with minor edits.

The Inland Empire Utilities Agency (IEUA), in coordination with the Chino Basin Watermaster (Watermaster or CBWM) has prepared a DSEIR to evaluate the potential significant environmental impacts that may result from implementing the Optimum Basin Management Program Update (OBMPU). The OBMPU is anticipated to be implemented over a horizon of about 30 years. The implementation of the facilities proposed as part of the OBMPU consists of construction and operation of the various facilities supporting the 9 Program Elements that make up the OBMPU. These potential facilities are separated into four project categories: (1) Project Category 1: Well Development and Monitoring Devices; (2) Project Category 2: Conveyance Facilities and Ancillary Facilities; (3) Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands; and, (4) Desalters and Water Treatment Facilities.

A detailed description of the construction and operational activities associated with implementation of the OBMPU is included in the Project Description, Chapter 3 of this DSEIR.

This document is a focused DSEIR for the above-described project and all of the standard issues related to energy identified in Appendix G of the State CEQA Guidelines are evaluated. The issues pertaining to Energy will be discussed below as set forth in the following framework:

4.5.1 Introduction
4.5.2 Existing Conditions
4.5.3 Regulatory Setting
4.5.4 Thresholds of Significance
4.5.5 Environmental Consequences
4.5.6 Avoidance, Minimization and Mitigation Measures
4.5.7 Cumulative Impacts
4.5.8 Unavoidable Significant Adverse Impacts

No comments were received at the scoping meeting or during the NOP Comment Period that pertain to Energy.

All references pertaining to this Subchapter are located within the EA is provided as Appendix 4 of Volume 2 of this DSEIR.

4.5.2 Existing Conditions

This section provides an overview of the existing energy conditions in the Project area and region.

4.5.2.1 Overview

The most recent data for California's estimated total energy consumption is from 2017 and natural gas consumption is from 2018, released by the United States (U.S.) Energy Information Administration's (EIA) California State Profile and Energy Estimates in 2020 and included:

- Approximately 7,881 trillion British Thermal Unit (BTU) of energy was consumed;
- Approximately 2,137 billion cubic feet of natural gas

The California Energy Commission's (CEC) Transportation Energy Demand Forecast 2018-2030 was released in order to support the 2017 Integrated Energy Policy Report. The Transportation energy Demand Forecast 2018-2030 lays out graphs and data supporting their projections of California's future transportation energy demand. The projected inputs consider expected variable changes in fuel prices, income, population, and other variables. Predictions regarding fuel demand included:

- Gasoline demand in the transportation sector is expected to decline from approximately 15.8 billion gallons in 2017 to between 12.3 billion and 12.7 billion gallons in 2030.
- Diesel demand in the transportation sector is expected to rise, increasing from approximately 3.7 billion diesel gallons in 2015 to approximately 4.7 billion in 2030.
    - Data from the Department of Energy states that approximately 3.9 billion gallons of diesel fuel were consumed in 2017.

The most recent data provided by the EIA for energy use in California by demand sector is from 2017 and is reported as follows:

- Approximately 40.3 percent (%) transportation;
- Approximately 23.1% industrial;
- Approximately 18.0% residential; and
- Approximately 18.7% commercial

In 2018, total system electric generation for California was 285,488 gigawatt hours (GWh). California's massive electricity in-state generation system generated approximately 194,842 GWh which accounted for approximately 68% of the electricity it uses; the rest was imported from the Pacific Northwest (14%) and the U.S. Southwest (18%). Natural gas is the main source for electricity generation at 47% of the total in-state electric generation system power as shown in Table 4.5-1.

Table 4.5-1
TOTAL ELECTRICITY SYSTEM POWER (CALIFORNIA 2018)

Fuel Type	California In-State Generation (GWh)	Percent of California In-State Generation	Northwest Imports (GWh)	Southwest Imports (GWh)	California Power Mix (GWh)	Percent California Power Mix
Coal	294	0.15%	399	8,740	9,433	3.30%
Large Hydro	22,096	11.34%	7,418	985	30,499	10.68%
Natural Gas	90,691	46.54%	49	8,904	99,644	34.91%
Nuclear	18,268	9.38%	0	7,573	25,841	9.05%
Oil	35	0.02%	0	0	35	0.01%

Fuel Type	California In-State Generation (GWh)	Percent of California In-State Generation	Northwest Imports (GWh)	Southwest Imports (GWh)	California Power Mix (GWh)	Percent California Power Mix
Other	430	0.22%	0	9	439	0.15%
Renewables	63,028	32.35%	14,074	12,400	89,502	31.36%
Biomass	5,909	3.03%	772	26	6,707	2.35%
Geothermal	11,528	5.92%	171	1,269	12,968	4.54%
Small Hydro	4,248	2.18%	334	1	4,583	1.61%
Solar	27,265	13.99%	174	5,094	32,533	11.40%
Wind	14,078	7.23%	12,623	6,010	32,711	11.46%
Unspecified Sources of Power	N/A	N/A	17,576	12,519	30,095	10.54%
Total	**194,842**	**100%**	**39,517**	**51,130**	**285,488**	**100%**

Source: https://www.energy.ca.gov/almanac/electricity_data/total_system_power.html

An updated summary of, and context for energy consumption and energy demands within the State is presented in "U.S. Energy Information Administration, California State Profile and Energy Estimates, Quick Facts" excerpted below:

- California was the seventh-largest producer of crude oil among the 50 states in 2018, and, as of January 2019, it ranked third in oil refining capacity.
- California is the largest consumer of jet fuel among the 50 states and accounted for one-fifth of the nation's jet fuel consumption in 2018.
- California's total energy consumption is second-highest in the nation, but, in 2018, the state's per capita energy consumption was the fourth-lowest, due in part to its mild climate and its energy efficiency programs.
- In 2018, California ranked first in the nation as a producer of electricity from solar, geothermal, and biomass resources and fourth in the nation in conventional hydroelectric power generation.
- In 2018, large- and small-scale solar PV and solar thermal installations provided 19% of California's net electricity generation.

As indicated above, California is one of the nation's leading energy-producing states, and California per capita energy use is among the nation's most efficient. Given the nature of the proposed Project, the remainder of this discussion will focus on the three sources of energy that are most relevant to the project—namely, electricity, natural gas, and transportation fuel for vehicle trips associated with the uses planned for the Project.

4.5.2.2 Electricity

The Southern California region's electricity reliability has been of concern for the past several years due to the planned retirement of aging facilities that depend upon once-through cooling technologies, as well as the June 2013 retirement of the San Onofre Nuclear Generating Station (San Onofre). While the once-through cooling phase-out has been ongoing since the May 2010 adoption of the State Water Resources Control Board's once-through cooling policy, the retirement of San Onofre complicated the situation. California ISO studies had revealed the extent to which the South Coast Air Basin (SCAB) and the San Diego Air Basin (SDAB) region were vulnerable to low-voltage and post-transient voltage instability concerns. A preliminary plan to address these issues was detailed in the 2013 Integrative Energy Policy Report (IEPR) after a collaborative process with other energy agencies, utilities, and air districts (10). If the resource development outlined in the preliminary plan continues as detailed, reliability in Southern California would likely be assured; however, tight resource margins have led energy agencies and the California Air Resources Board (CARB) to develop a contingency plan. This contingency plan was discussed at a public workshop in Los Angeles on August 20, 2014 and is detailed within this Section.

Electricity is provided to the Project by Southern California Edison (SCE). SCE provides electric power to more than 15 million persons in 15 counties and in 180 incorporated cities, within a service area encompassing approximately 50,000 square miles. Based on SCE's 2018 Power Content Label Mix, SCE derives electricity from varied energy resources including: fossil fuels, hydroelectric generators, nuclear power plants, geothermal power plants, solar power generation, and wind farms. SCE also purchases from independent power producers and utilities, including out-of-state suppliers.

California's electricity industry is an organization of traditional utilities, private generating companies, and state agencies, each with a variety of roles and responsibilities to ensure that electrical power is provided to consumers. The California Independent Service Operator (ISO) is a nonprofit public benefit corporation and is the impartial operator of the State's wholesale power grid and is charged with maintaining grid reliability, and to direct uninterrupted electrical energy supplies to California's homes and communities. While utilities [such as SCE] still own transmission assets, the ISO routes electrical power along these assets, maximizing the use of the transmission system and its power generation resources. The ISO matches buyers and sellers of electricity to ensure that sufficient power is available to meet demand. To these ends, every five minutes the ISO forecasts electrical demands, accounts for operating reserves, and assigns the lowest cost power plant unit to meet demands while ensuring adequate system transmission capacities and capabilities (California ISO., n.d.).

Part of the ISO's charge is to plan and coordinate grid enhancements to ensure that electrical power is provided to California consumers. To this end, transmission owners (investor-owned utilities such as SCE) file annual transmission expansion/modification plans to accommodate the State's growing electrical needs. The ISO reviews and either approves or denies the proposed additions. In addition, and perhaps most importantly, the ISO works with other areas in the western United States electrical grid to ensure that adequate power supplies are available to the State. In this manner, continuing reliable and affordable electrical power is assured to existing and new consumers throughout the State.

Table 4.5-2 identifies SCE's specific proportional shares of electricity sources in 2018. As indicated in Table 4.5-2, the 2018 SCE Power Mix has renewable energy at 36% of the overall energy resources. Geothermal resources are at 8%, wind power is at 13%, large hydroelectric sources are at 1%, solar energy is at 13%, and coal is at 0%. Biomass and waste sources have increased by 1% since 2017. Natural gas remains at 17% since 2017 (Southern California Edison, 2018).

Table 4.5-2
SCE 2018 POWER CONTENT MIX

Energy Resources	2018 SCE Power Mix
Eligible Renewable	**36%**
Biomass & waste	1%
Geothermal	8%
Small Hydroelectric	1%
Solar	13%
Wind	13%
Coal	**0%**
Large Hydroelectric	**4%**
Natural Gas	**17%**
Nuclear	**6%**
Other	**0%**
Unspecified Sources of power*	37%
Total	**100%**

* "Unspecified sources of power" means electricity from transactions that are not traceable to specific generation sources

4.5.2.3 Natural Gas

The usage associated with natural gas use were calculated using the California Emissions Estimator Model (CalEEMod) v2016.3.2 model. The following summary of natural gas resources and service providers, delivery systems, and associated regulation is excerpted from information provided by the California Public Utilities Commission (CPUC).

"The CPUC regulates natural gas utility service for approximately 10.8 million customers that receive natural gas from Pacific Gas and Electric (PG&E), Southern California Gas (SoCalGas), San Diego Gas & Electric (SDG&E), Southwest Gas, and several smaller natural gas utilities. The CPUC also regulates independent storage operators: Lodi Gas Storage, Wild Goose Storage, Central Valley Storage and Gill Ranch Storage.

The vast majority of California's natural gas customers are residential and small commercial customers, referred to as "core" customers, who accounted for approximately 32% of the natural gas delivered by California utilities in 2012. Large consumers, like electric generators and industrial customers, referred to as "noncore" customers, accounted for approximately 68% of the natural gas delivered by California utilities in 2012.

The PUC regulates the California utilities' natural gas rates and natural gas services, including in-state transportation over the utilities' transmission and distribution pipeline systems, storage, procurement, metering and billing. Most of the natural gas used in California comes from out-of-state natural gas basins. In 2012, California customers received 35% of their natural gas supply from basins located in the Southwest, 16% from Canada, 40% from the

Rocky Mountains, and 9% from basins located within California. California gas utilities may soon also begin receiving biogas into their pipeline systems.

Natural gas from out-of-state production basins is delivered into California via the interstate natural gas pipeline system. The major interstate pipelines that deliver out-of-state natural gas to California consumers are the Gas Transmission Northwest Pipeline, Kern River Pipeline, Transwestern Pipeline, El Paso Pipeline, Ruby Pipeline, Questar Southern Trails and Mojave Pipeline. Another pipeline, the North Baja – Baja Norte Pipeline, takes gas off the El Paso Pipeline at the California/Arizona border, and delivers that gas through California into Mexico. While the Federal Energy Regulatory Commission (FERC) regulates the transportation of natural gas on the interstate pipelines, the PUC often participates in FERC regulatory proceedings to represent the interests of California natural gas consumers.

Most of the natural gas transported via the interstate pipelines, as well as some of the California-produced natural gas, is delivered into the PG&E and SoCalGas intrastate natural gas transmission pipeline systems (commonly referred to as California's "backbone" natural gas pipeline system). Natural gas on the utilities' backbone pipeline systems is then delivered into the local transmission and distribution pipeline systems, or to natural gas storage fields. Some large noncore customers take natural gas directly off the high-pressure backbone pipeline systems, while core customers and other noncore customers take natural gas off the utilities' distribution pipeline systems. The PUC has regulatory jurisdiction over 150,000 miles of utility-owned natural gas pipelines, which transported 82% of the total amount of natural gas delivered to California's gas consumers in 2012.

SDG&E and Southwest Gas' southern division are wholesale customers of SoCalGas, and currently receive all of their natural gas from the SoCalGas system (Southwest Gas also provides natural gas distribution service in the Lake Tahoe area). Some other municipal wholesale customers are the cities of Palo Alto, Long Beach, and Vernon, which are not regulated by the CPUC.

Some of the natural gas delivered to California customers may be delivered directly to them without being transported over the regulated utility systems. For example, the Kern River/Mojave pipeline system can deliver natural gas directly to some large customers, "bypassing" the utilities' systems. Much of California-produced natural gas is also delivered directly to large consumers.

PG&E and SoCalGas own and operate several natural gas storage fields that are located in northern and southern California. These storage fields, and four independently owned storage utilities – Lodi Gas Storage, Wild Goose Storage, Central Valley Storage, and Gill Ranch Storage – help meet peak seasonal natural gas demand and allow California natural gas customers to secure natural gas supplies more efficiently. (A portion of the Gill Ranch facility is owned by PG&E).

California's regulated utilities do not own any natural gas production facilities. All of the natural gas sold by these utilities must be purchased from suppliers and/or marketers. The price of natural gas sold by suppliers and marketers was deregulated by the FERC in the mid-1980's and is determined by "market forces." However, the PUC decides whether California's utilities have taken reasonable steps in order to minimize the cost of natural gas purchased on behalf of their core customers."

As indicated in the preceding discussion, natural gas is available from a variety of in-state and out-of-state sources and is provided throughout the state in response to market supply and demand. Complementing available natural gas resources, biogas may soon be available via existing delivery systems, thereby increasing the availability and reliability of resources in total. The PUC oversees utility purchases and transmission of natural gas to ensure reliable and affordable natural gas deliveries to existing and new consumers throughout the State.

4.5.2.4 Transportation Energy Resources

The Project would generate additional vehicle trips with resulting consumption of energy resources, predominantly gasoline and diesel fuel. In March 2018, the Department of Motor Vehicles (DMV) identified 35 million registered vehicles in California, and those vehicles (as noted previously) consume an estimated 19 billion gallons of fuel each year[1]. Gasoline (and other vehicle fuels) are commercially provided commodities and would be available to the Project patrons and employees via commercial outlets.

California's on-road transportation system includes 170,000 miles of highways and major roadways, more than 27 million passenger vehicles and light trucks, and almost 8 million medium- and heavy-duty vehicles. While gasoline consumption has been declining since 2008 it is still by far the dominant fuel. Petroleum comprises about 92% of all transportation energy use, excluding fuel consumed for aviation and most marine vessels. Nearly 19 billion gallons of on-highway fuel are burned each year, including 15.1 billion gallons of gasoline (including ethanol) and 3.9 billion gallons of diesel fuel (including biodiesel and renewable diesel). In 2016, Californians also used 194 million therms of natural gas as a transportation fuel, or the equivalent of 155 million gallons of gasoline.

4.5.3 <u>Regulatory Setting</u>

Federal and state agencies regulate energy use and consumption through various means and programs. On the federal level, the United States Department of Transportation, the United States Department of Energy, and the United States Environmental Protection Agency are three federal agencies with substantial influence over energy policies and programs. On the state level, the PUC and the CEC are two agencies with authority over different aspects of energy. Relevant federal and state energy-related laws and plans are summarized below. Project consistency with applicable federal and state regulations is also presented in *italicized* text.

4.5.3.1 International

<u>4.5.3.1.1 Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA)</u>

The ISTEA promoted the development of inter-modal transportation systems to maximize mobility as well as address national and local interests in air quality and energy. ISTEA contained factors that Metropolitan Planning Organizations (MPOs) were to address in developing transportation plans and programs, including some energy-related factors. To meet the new ISTEA requirements, MPOs adopted explicit policies defining the social, economic, energy, and environmental values guiding transportation decisions.

Transportation and access to the Project site is provided primarily by the local and regional roadway systems. The Project would not interfere with, nor otherwise obstruct intermodal

[1] Fuel consumptions estimated utilizing information from EMFAC2014.

transportation plans or projects that may be realized pursuant to the ISTEA because Southern California Association of Governments (SCAG) is not planning for intermodal facilities on or through the Project site.

4.5.3.1.2 The Transportation Equity Act for the 21st Century (TEA-21)

TEA-21 was signed into law in 1998 and builds upon the initiatives established in the ISTEA legislation, discussed above. TEA-21 authorizes highway, highway safety, transit, and other efficient surface transportation programs. TEA-21 continues the program structure established for highways and transit under ISTEA, such as flexibility in the use of funds, emphasis on measures to improve the environment, and focus on a strong planning process as the foundation of good transportation decisions. TEA-21 also provides for investment in research and its application to maximize the performance of the transportation system through, for example, deployment of Intelligent Transportation Systems, to help improve operations and management of transportation systems and vehicle safety.

The Project site is located along major transportation corridors with proximate access to the Interstate freeway system and supports the strong planning processes emphasized under TEA-21. The Project is therefore consistent with, and would not otherwise interfere with, nor obstruct, implementation of TEA-21.

4.5.3.2 California Regulations

4.5.3.2.1 Integrated Energy Policy Report

Senate Bill 1389 (Bowen, Chapter 568, Statutes of 2002) requires the CEC to prepare a biennial integrated energy policy report that assesses major energy trends and issues facing the state's electricity, natural gas, and transportation fuel sectors and provides policy recommendations to conserve resources; protect the environment; ensure reliable, secure, and diverse energy supplies; enhance the state's economy; and protect public health and safety (Public Resources Code § 25301a]). The Energy Commission prepares these assessments and associated policy recommendations every two years, with updates in alternate years, as part of the Integrated Energy Policy Report.

The 2018 IEPR was adopted February 20, 2019, and continues to work towards improving electricity, natural gas, and transportation fuel energy use in California. The 2018 IEPR focuses on a variety of topics such as including the environmental performance of the electricity generation system, landscape-scale planning, the response to the gas leak at the Aliso Canyon natural gas storage facility, transportation fuel supply reliability issues, updates on Southern California electricity reliability, methane leakage, climate adaptation activities for the energy sector, climate and sea level rise scenarios, and the California Energy Demand Forecast.

Electricity would be provided to the Project by Southern California Edison (SCE). SCE's Clean Power and Electrification Pathway (CPEP) white paper builds on existing state programs and policies. As such, the Project is consistent with, and would not otherwise interfere with, nor obstruct implementation the goals presented in the 2018 IEPR.

4.5.3.2.2 State of California Energy Plan

The CEC is responsible for preparing the State Energy Plan, which identifies emerging trends related to energy supply, demand, conservation, public health and safety, and the maintenance of a healthy economy. The Plan calls for the state to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies a number of strategies, including assistance to public agencies and fleet operators and encouragement of urban designs that reduce VMT and accommodate pedestrian and bicycle access.

The Project does not generate a substantive amount of vehicular travel would not otherwise interfere with, nor obstruct implementation of the State of California Energy Plan.

4.5.3.2.3 California Code Title 24, Part 6, Energy Efficiency Standards

California Code of Regulations Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings, was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases GHG emissions. The 2019 version of Title 24 was adopted by the CEC and went into effect on January 1, 2020. The 2019 Title 24 standards go into effect on January 1, 2020 and are applicable to building permit applications submitted on or after that date. The 2019 Title 24 standards require solar photovoltaic systems for new homes, establish requirements for newly constructed healthcare facilities, encourage demand responsive technologies for residential buildings, update indoor and outdoor lighting for nonresidential buildings. The CEC anticipates that single-family homes built with the 2019 standards will use approximately 7% less energy compared to the residential homes built under the 2016 standards. Additionally, after implementation of solar photovoltaic systems, homes built under the 2019 standards will about 53% less energy than homes built under the 2016 standards. Nonresidential buildings will use approximately 30% less energy due to lighting upgrades.

The 2019 version of Title 24 was adopted by the CEC and became effective on January 1, 2020.

4.5.4 Thresholds of Significance

In compliance with Appendix G of the *State CEQA Guidelines,* this report analyzes the project's anticipated energy use to determine if the Project would:

a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation; or
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency

In addition, Appendix F of the *State CEQA Guidelines,* states that the means of achieving the goal of energy conservation includes the following:

- Decreasing overall per capita energy consumption;
- Decreasing reliance on fossil fuels such as coal, natural gas and oil; and
- Increasing reliance on renewable energy sources.

4.5.4.1 Methodology

On October 17, 2017, the SCAQMD, in conjunction with the California Air Pollution Control Officers Association (CAPCOA) and other California air districts, released the latest version of the California Emissions Estimator Model (CalEEMod) Version 2016.3.2. The purpose of this model is to calculate construction-source and operational-source criteria pollutants and GHG emissions from direct and indirect sources; and quantify applicable air quality and GHG reductions achieved from mitigation measures. Accordingly, the latest version of CalEEMod has been used for this Project to determine GHG emissions. Output from the model runs for construction activity are provided in Appendices 3.1 through 3.4 of the EA.

4.5.5 Environmental Consequences

a) Would the Project Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs?

4.5.5(a/b).1 Construction Energy Demands

The focus within this section is the energy implications of the construction process, specifically the power cost from on-site electricity consumption during construction of the proposed Project.

Because few details are known at this time regarding construction of specific projects, it is assumed that construction of any Project facilities may occur simultaneously. As a conservative measure, and in order to identify the maximum daily emissions, this AQIA assumes that the Project would construct the following features simultaneously:

Project Category 1

- 20 monitoring wells
- 10 production wells
- 65,000 linear feet (LF) of associated conveyance pipeline

Project Category 2

- 200,000 LF of conveyance pipeline

Project Category 3

- One new storage reservoir on a 100-acre site
- 60,000 LF of associated conveyance pipeline

Project Category 4

- One new water treatment facility on a 10-acre site
- One new regional water treatment facility on a 10-acre site
- 60,000 LF of associated conveyance pipeline

4.5.5(a).1.1 Construction Duration

Based on information provided in the Project Description, construction activities for Project Categories 1 and 2 are expected to occur over a 12-month period while construction activities for Project Categories 3 and 4 will occur over an 18-month period.

4.5.5(a/b).1.2 Construction Equipment

Associated equipment was based on information provided by the Project Description. Please refer to specific detailed modeling inputs/outputs contained in Appendices 4.1 through 4.4 of the AQIA. A detailed summary of construction equipment is provided at Table 4.5-3.

Table 4.5-3
CONSTRUCTION EQUIPMENT ASSUMPTIONS

Equipment	CalEEMod Equivalent	Amount	Hours Per Day
Project Category 1			
Bore/Drill Rigs	Bore/Drill Rigs	1	8
Cement Trucks	Off-Highway Trucks	1	8
Project Category 2			
Backhoes	Tractor/Loaders/Backhoes	2	8
Dump Trucks	Off-Highway Trucks	2	8
Excavators	Excavators	2	8
Pavers	Pavers	2	8
Rollers	Rollers	2	8
Water Trucks	Off-Highway Trucks	20	8
Project Category 3			
Bulldozers	Rubber Tired Dozers	2	8
Dump Trucks	Off-Highway Trucks	4	8
Excavators	Excavators	2	8
Loaders	Tractors/Loaders/Backhoes	2	8
Scrapers	Scrapers	7	8
Water Trucks	Off-Highway Trucks	2	
Project Category 4			
Backhoes	Tractors/Loaders/Backhoes	3	8
Compactors	Plate Compactors	3	8
Concrete Trucks	Off-Highway Trucks	3	8
Cranes	Cranes	3	8
Delivery Trucks	Off-Highway Trucks	3	8
Dump Trucks	Off-Highway Trucks	3	8
Graders	Graders	3	8
Loaders	Tractors/Loaders/Backhoes	3	8
Other Trucks	Off-Highway Trucks	3	8
Water Trucks	Off-Highway Trucks	3	8

4.5.5(a/b).1.3 Construction Electricity Usage Estimates

As shown on Table 4.5-4, the total power cost of the on-site electricity usage during the construction of the proposed Project is estimated to be approximately $199,551,950.11.

Table 4.5-4
TOTAL CONSTRUCTION POWER COST

Project	Power Cost (per 1,000 SF of construction area per month)[2]	Total Construction Area Size (1,000 SF)	Construction Duration (months)	Project Construction Power Cost
Project Category 1	$2.32	477.500	12	$13,293.60
Project Category 2	$2.32	1,400.000	12	$38,976.00
Project Category 3	$2.32	4,776,000.000	18	$199,445,760.00
Project Category 4	$2.32	1,291.200	18	$53,920.51
TOTAL PROJECT CONSTRUCTION POWER COST				***$199,551,950.11***

Additionally, as of January 1, 2020, SCE's general service rate schedule (GS-1) for an industrial land uses is $0.08 per kilowatt hours (kWh) of electricity. As shown on Table 4.5-5, the total electricity usage from on-site Project construction related activities is estimated to be approximately 2,497,677,578 kWh.

Table 4.5-5
PROJECT CONSTRUCTION ELECTRICITY USAGE

Project	Cost per kWh	Project Construction Electricity Usage (kWh)
Project Category 1	$0.08	166,388
Project Category 2	$0.08	487,840
Project Category 3	$0.08	2,496,348,457
Project Category 4	$0.08	674,892
TOTAL PROJECT CONSTURCTION ELECTRICTY		***2,497,677,578***

[1]Assumes the Project will be under the GS-1 General Industrial service rate under SCE

4.5.5(a/b).1.4 Construction Equipment Fuel Estimates

Fuel consumed by construction equipment would be the primary energy resource expended over the course of Project construction. Project construction activity timeline estimates, construction equipment schedules, equipment power ratings, load factors, and associated fuel consumption estimates are presented in Table 4.5-6. Eight-hour daily use of all equipment is assumed. The aggregate fuel consumption rate for all equipment is estimated at 18.5 horsepower-hour per gallon (hp-hr/gal), obtained from CARB 2018 Emissions Factors Tables and cited fuel consumption rate factors presented in Table D-24 of the Moyer guidelines (25). For the purposes of this analysis, the calculations are based on all construction equipment being diesel-powered which is standard practice consistent with industry standards. Diesel fuel would be supplied by existing commercial fuel providers serving the region.

[2] The *2017 National Construction Estimator*, Richard Pray (2017), the typical power cost per 1,000 sf of construction per month is estimated to be $2.32.

Table 4.5-6
CONSTRUCTION EQUIPMENT FUEL CONSUMPTION ESTIMATES

Equipment	HP Rating	Quantity	Usage Hours	Load Factor	HP-hrs/day	Total Fuel Consumption (gal. diesel fuel)
Project Category 1						
Bore/Drill Rigs	221	1	8	0.50	884	17,489
Off-Highway Trucks	402	1	8	0.38	1,222	24,177
PROJECT CATEGORY 1 - CONSTRUCTION FUEL DEMAND (GALLONS DIESEL FUEL)						***41,666***
Project Category 2						
Excavators	158	2	8	0.38	961	19,005
Off-Highway Trucks	402	22	8	0.38	26,886	531,902
Pavers	130	2	8	0.42	874	17,283
Rollers	80	2	8	0.38	486	9,623
Tractors/Loaders/Backhoe	97	2	8	0.37	574	11,361
PROJECT CATEGORY 2 - CONSTRUCTION FUEL DEMAND (GALLONS DIESEL FUEL)						***589,174***
Project Category 3						
Excavators	158	2	8	0.38	961	28,560
Off-Highway Trucks	402	6	8	0.38	7,332	217,993
Rubber Tired Dozers	247	2	8	0.40	1,581	46,997
Scrapers	367	7	8	0.48	9,865	293,283
Tractors/Loaders/Backhoe	97	2	8	0.37	574	17,072
PROJECT CATEGORY 3 - CONSTRUCTION FUEL DEMAND (GALLONS DIESEL FUEL)						***603,904***
Project Category 4						
Cranes	231	3	8	0.29	1,608	47,538
Graders	187	1	8	0.41	613	18,136
Off-Highway Trucks	402	15	8	0.38	18,331	542,009
Plate Compactors	8	3	8	0.43	83	2,441
Tractors/Loaders/Backhoe	97	6	8	0.37	1,723	50,937
PROJECT CATEGORY 4 - CONSTRUCTION FUEL DEMAND (GALLONS DIESEL FUEL)						***661,060***
TOTAL CONSTRUCTION FUEL DEMAND (GALLONS DIESEL FUEL)						***1,895,803***

As presented in Table 4.5-6, Project construction activities would consume an estimated 1,895,803 gallons of diesel fuel. Project construction would represent a “single-event” diesel fuel demand and would not require on-going or permanent commitment of diesel fuel resources for this purpose.

4.5.5(a/b).1.5 Construction Worker Fuel Estimates

It is assumed that all construction worker trips are from light duty autos (LDA) along area roadways. With respect to estimated VMT, the construction worker trips would generate an estimated 1,308,120 VMT. Data regarding Project related construction worker trips were based on CalEEMod defaults utilized within the AQIA.

Vehicle fuel efficiencies for LDA were estimated using information generated within the 2014 version of the Emissions FACtor model (EMFAC) developed by the CARB. EMFAC2014 is a mathematical model that was developed to calculate emission rates, fuel consumption, and VMT from motor vehicles that operate on highways, freeways, and local roads in California and is commonly used by the CARB to project changes in future emissions from on-road mobile sources. EMFAC2014 was run for the LDA vehicle class within the California sub-area for a 2021 calendar year. Data from EMFAC2014 is shown in Appendix 4.5 of the EA.

As generated by EMFAC2014, an aggregated fuel economy of LDAs ranging from model year 1974 to model year 2021 are estimated to have a fuel efficiency of 31.28 miles per gallon (mpg). Table 4.5-7 provides an estimated annual fuel consumption resulting from the Project generated by LDAs related to construction worker trips. Based on Table 4.5-7, it is estimated that 41,824 gallons of fuel will be consumed related to construction worker trips during full construction of the proposed Project. Project construction worker trips would represent a "single-event" gasoline fuel demand and would not require on-going or permanent commitment of fuel resources for this purpose.

Table 4.5-7
CONSTRUCTION WORKER FUEL CONSUMPTION ESTIMATES

Project	Worker Trips / Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Project Category 1	10	30	109,800	31.28	3,511
Project Category 2	28	40	409,920	31.28	13,106
Project Category 3	6	40	132,000	31.28	4,220
Project Category 4	30	40	656,400	31.28	20,987
TOTAL CONSTRUCTION WORKER FUEL CONSUMPTION					***41,824***

4.5.5(a/b).1.6 Construction Hauling Fuel Estimates

With respect to estimated VMT, the construction hauling trips would generate an estimated 7,407,000 VMT along area roadways. It is assumed that 50% of all vendor trips are from Medium-Heavy-Duty-Trucks (MHDT), 50% of vendor trips are from Heavy-Heavy-Duty Trucks (HHDT), and 100% of hauling trips are from HHDTs. Vehicle fuel efficiencies for MHDTs and HHDTs were estimated using information generated within EMFAC2014. For purposes of this analysis, EMFAC2014 was run for the MHDT and HHDT vehicle class within the California sub-area for the 2021 construction year. Data from EMFAC2014 is shown in Appendix 4.5 of the EA.

As generated by EMFAC2014, the aggregated fuel economy of MHDTs and HHDTs ranging from model year 1974 to model year 2021 are presented in Table 4.5-8. Based on Table 4.5-8, it is estimated that 73,789 gallons of fuel would be consumed in relation to construction vendor trips (MHDTs). Table 4.5-9 shows the estimated fuel economy of HHDTs accessing the Project site. Based on Table 4.5-9, fuel consumption from construction vendor and hauling trips (HHDTs) will total approximately 1,071,773 gallons of fuel would be consumed in relation to construction vendor trips (HHDTs) during construction of the Project. The total fuel consumption from construction vendor trips (MHDTs and HHDTs) is 1,145,562 gallons. Project construction vendor trips would represent a "single-event" diesel fuel demand and would not require on-going or permanent commitment of diesel fuel resources for this purpose.

Table 4.5-8
CONSTRUCTION VENDOR FUEL CONSUMPTION ESTIMATES – MHDT

Construction Activity	Vendor Trips / Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Vendor					
Project Category 1	15	50	274,500	8.82	31,114
Project Category 2	10	40	146,400	8.82	16,594
Project Category 3	3	40	66,000	8.82	7,481
Project Category 4	8	40	164,100	8.82	18,600
TOTAL FUEL CONSUMPTION – VENDOR (MHDT)					***73,789***

Table 4.5-9
CONSTRUCTION VENDOR/HAULING FUEL CONSUMPTION ESTIMATES – HHDT

Construction Activity	Vendor Trips / Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Vendor					
Project Category 1	15	50	274,500	6.30	43,547
Project Category 2	10	40	146,400	6.30	23,225
Project Category 3	3	40	66,000	6.30	10,470
Project Category 4	8	40	164,100	6.30	26,033
Hauling					
Project Category 3	370	30	6,105,000	6.30	968,499
TOTAL FUEL CONSUMPTION – VENDOR/HAULING (HHDT)					***1,071,773***

4.5.5(a/b).1.7 Construction Energy Efficiency/Conservation Measures

The equipment used for Project construction would conform to CARB regulations and California emissions standards. There are no unusual Project characteristics or construction processes that would require the use of equipment that would be more energy intensive than is used for comparable activities; or equipment that would not conform to current emissions standards (and related fuel efficiencies). Equipment employed in construction of the Project would therefore not result in inefficient wasteful, or unnecessary consumption of fuel.

The Project would utilize construction contractors which practice compliance with applicable CARB regulation regarding retrofitting, repowering, or replacement of diesel off-road construction equipment. Additionally, CARB has adopted the Airborne Toxic Control Measure to limit heavy-duty diesel motor vehicle idling in order to reduce public exposure to diesel particulate matter and other Toxic Air Contaminants. Compliance with anti-idling and emissions regulations would result in a more efficient use of construction-related energy and the minimization or elimination of wasteful or unnecessary consumption of energy. Idling restrictions and the use of newer engines and equipment would result in less fuel combustion and energy consumption.

Additionally, certain incidental construction-source energy efficiencies would likely accrue through implementation of California regulations and best available control measures (BACM). More specifically, California Code of Regulations Title 13, Motor Vehicles, section 2449(d)(3) Idling, limits idling times of construction vehicles to no more than five minutes, thereby precluding unnecessary and wasteful consumption of fuel due to unproductive idling of construction equipment. To this end, "grading plans shall reference the requirement that a sign shall be posted on-site stating that construction workers need to shut off engines at or before five minutes of idling." In this manner, construction equipment operators are informed that engines are to be turned off at or prior to five minutes of idling. Enforcement of idling limitations is realized through periodic site inspections conducted by County building officials, and/or in response to citizen complaints.

Indirectly, construction energy efficiencies and energy conservation would be achieved for the proposed development through energy efficiencies realized from bulk purchase, transport and use of construction materials.

A full analysis related to the energy needed to form construction materials is not included in this analysis due to a lack of detailed Project-specific information on construction materials. At this time, an analysis of the energy needed to create Project-related construction materials would be extremely speculative and thus has not been prepared.

In general, the construction processes promote conservation and efficient use of energy by reducing raw materials demands, with related reduction in energy demands associated with raw materials extraction, transportation, processing and refinement. Use of materials in bulk reduces energy demands associated with preparation and transport of construction materials as well as the transport and disposal of construction waste and solid waste in general, with corollary reduced demands on area landfill capacities and energy consumed by waste transport and landfill operations.

4.5.5(a/b).2 Construction Energy Demands: Summary

4.5.5(a/b).2.1 Construction Energy Demands

The estimated power cost of on-site electricity usage during the construction of the proposed Project is assumed to be around $199,551,950.11. Additionally, based on the assumed power cost, it is estimated that the total electricity usage during construction is calculated to be around 2,497,677,578 kWh.

Construction equipment used by the Project would result in single event consumption of approximately 1,895,803 gallons of diesel fuel. Construction equipment use of fuel would not be atypical for the type of construction proposed because there are no aspects of the Project's proposed construction process that are unusual or energy-intensive, and Project construction equipment would conform to the applicable CARB emissions standards, acting to promote equipment fuel efficiencies.

California Code of Regulations (CCR) Title 13, Title 13, Motor Vehicles, section 2449(d)(3) Idling, limits idling times of construction vehicles to no more than 5 minutes, thereby precluding unnecessary and wasteful consumption of fuel due to unproductive idling of construction equipment. BACMs inform construction equipment operators of this requirement. Enforcement of idling limitations is realized through periodic site inspections conducted by County building officials, and/or in response to citizen complaints.

Construction worker trips for construction of the proposed Project would result in the estimated fuel consumption of 41,824 gallons of fuel. Additionally, fuel consumption from construction hauling trips will total approximately 1,145,562 gallons. Diesel fuel would be supplied by County and regional commercial vendors. Indirectly, construction energy efficiencies and energy conservation would be achieved through the use of bulk purchases, transport and use of construction materials. The 2018 IEPR released by the CEC has shown that fuel efficiencies are getting better within on and off-road vehicle engines due to more stringent government requirements. As supported by the preceding discussions, Project construction energy consumption would not be considered inefficient, wasteful, or otherwise unnecessary.

4.5.5(a/b).2.2 Operational Energy Demands

In terms of operational energy demands, the proposed Project involves the construction of wells, conveyance facilities and ancillary facilities, storage basins, recharge facilities, storage bands, desalters and water treatment facilities, and associated improvements. The proposed Project does not include any substantive new stationary or mobile sources of emissions, and therefore, by its very nature, will not generate substantive amounts of energy demand from Project operations. The Project does not propose a trip-generating land use or facilities that would generate any substantive amount of on-going energy demands. While it is anticipated that the Project would require intermittent maintenance, such maintenance would be minimal requiring a negligible amount of traffic trips on an annual basis. Therefore, there is no significant operational impact associated with energy demands.

4.5.5(a/b).2.3 Conclusion

Energy Impact-1: ***Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation*****.**

As supported by the preceding analyses, Project construction would not result in the inefficient, wasteful or unnecessary consumption of energy. Further, the energy demands of the Project can be accommodated within the context of available resources and energy delivery systems. The Project would therefore not cause or result in the need for additional energy producing or transmission facilities. The Project would not engage in wasteful or inefficient uses of energy and aims to achieve energy conservations goals within the State of California.

Energy Impact-2: ***Conflict with or obstruct a state or local plan for renewable energy or energy efficiency*****.**

The Project includes construction activity and associated improvements and would not result in the inefficient, wasteful, or unnecessary consumption of energy. In fact, the proposed Project involves the construction of wells, conveyance facilities and ancillary facilities, storage basins, recharge facilities, storage bands, desalters and water treatment facilities, and associated improvements which would result in a more efficient process and consequently reduce a wasteful use of energy. Further, the Project would not cause or result in the need for additional energy producing facilities or energy delivery systems.

4.5.6 Avoidance, Minimization and Mitigation Measures

Mitigation measures designed to reduce energy consumption from construction and operation of OBMPU are identified in Subchapter 4.2, Air Quality, of this DEIR (MMs **AQ-1** specifically addresses this issue). Because there is a potential for certain types of OBMPU Facilities to require a substantial amount of operational energy, the following mitigation is required:

EN-1 ***Where feasible, future OBMPU Projects shall consider the use of alternative energy sources to serve the future OBMPU Facility energy demands.***

EN-2 ***Future OBMPU Projects that are anticipated to utilize a substantial amount of energy for operations, such as regional groundwater treatment plants, pump stations, upgrades to expand capacity at existing water treatment plants, etc., shall undergo subsequent CEQA documentation to address operational energy demands and GHG emissions related to energy demands. The determination of whether a project will be a large consumer of energy shall be left to the Watermaster or Implementing Agency for the Project's discretion.***

No additional mitigation measures are recommended or required. With implementation of the above mitigation measures, and compliance with Federal and State regulations pertaining to energy conservation, the proposed OBMPU is anticipated to have a less than significant impact on energy demand and resources.

4.5.7 Cumulative Impacts

The proposed OBMPU would contribute to the cumulative use of energy and by other agencies within the Chino Basin area. The region is anticipating moderate population growth and associated housing, commercial, and industrial developments that would cumulatively increase the demand for energy. While the OBMPU aims at reducing overall energy consumption for the facilities proposed in all Project Categories, it would increase the energy demands over the 30-year horizon in which OBMPU projects will be constructed and operated. Therefore, the proposed Program's contribution to energy consumption would be cumulatively considerable, and thus a potentially significant impact.

4.5.8 Unavoidable Significant Adverse Impacts

With adherence to and implementation of the above mitigation measures and those referenced in the Section 4.2 Air Quality, local General Plan policies, State and Federal regulations pertaining to energy conservation, SCE programs, and other existing regulations, the proposed Project's potential energy cumulative and Program-specific impacts can be controlled and will be reduced below a level of significance.

4.6 GREENHOUSE GASES / GLOBAL CLIMATE CHANGE

4.6.1 Introduction

The *2020 Optimum Basin Management Program Update Greenhouse Gas Analysis Chino Basin Watermaster* dated March 6, 2020 (GHGA) was prepared by Urban Crossroads to evaluate the potential impacts to greenhouse gas (GHG) associated with construction and operation of the facilities proposed as part of the Optimum Basin Management Program Update (OBMPU) Draft Subsequent EIR (DSEIR). A copy of the GHGA is provided as Appendix 5 of Volume 2 of this DSEIR. Much of the information provided in the following sections is abstracted directly from this technical report with minor edits.

The Inland Empire Utilities Agency (IEUA), in coordination with the Chino Basin Watermaster (Watermaster or CBWM) has prepared a DSEIR to evaluate the potential significant environmental impacts that may result from implementing the Optimum Basin Management Program Update (OBMPU). The OBMPU is anticipated to be implemented over a horizon of about 30 years. The implementation of the facilities proposed as part of the OBMPU consists of construction and operation of the various facilities supporting the 9 Program Elements that make up the OBMPU. These potential facilities are separated into four project categories: (1) Project Category 1: Well Development and Monitoring Devices; (2) Project Category 2: Conveyance Facilities and Ancillary Facilities; (3) Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands; and, (4) Desalters and Water Treatment Facilities.

A detailed description of the construction and operational activities associated with implementation of the OBMPU is included in the Project Description, Chapter 3 of this DSEIR.

This document is a focused DSEIR for the above-described project and all of the standard issues related to air quality identified in Appendix G of the State CEQA Guidelines. The issues pertaining to GHG will be discussed below as set forth in the following framework:

4.6.1 Introduction
4.6.2 Climate Change Setting
4.6.3 Regulatory Setting
4.6.4 Thresholds of Significance
4.6.5 Environmental Consequences
4.6.6 Avoidance, Minimization and Mitigation Measures
4.6.7 Cumulative Impacts
4.6.8 Unavoidable Significant Adverse Impacts

No comments were received at the scoping meeting or during the NOP Comment Period that pertain to Greenhouse Gas.

All references pertaining to this Subchapter are located within the GHGA is provided as Appendix 5 of Volume 2 of this DSEIR.

4.6.2 Climate Change Setting

4.6.2.1 Introduction to Global Climate Change (GCC)

GCC is defined as the change in average meteorological conditions on the earth with respect to historic temperature, precipitation, and storms. The majority of climate scientists believe that the climate shift taking place since the Industrial Revolution is occurring at a quicker rate and magnitude than in the past. Scientific evidence suggests that GCC is the result of increased concentrations of GHGs in the earth's atmosphere, including carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), and fluorinated gases. The majority of scientists believe that this increased rate of climate change is the result of GHGs resulting from human activity and industrialization over the past 200 years.

An individual project like the proposed Project evaluated in this GHGA cannot generate enough GHG emissions to affect a discernible change in global climate. However, the proposed Project may participate in the potential for GCC by its incremental contribution of GHGs combined with the cumulative increase of all other sources of GHGs, which when taken together constitute potential influences on GCC. Because these changes may have serious environmental consequences, this Subchapter will evaluate the potential for the proposed Project to have a significant effect upon the environment as a result of its potential contribution to the greenhouse effect.

4.6.2.2 Global Climate Change Defined

GCC refers to the change in average meteorological conditions on the earth with respect to temperature, wind patterns, precipitation and storms. Global temperatures are regulated by naturally occurring atmospheric gases such as water vapor, CO_2, N_2O, CH_4, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). These particular gases are important due to their residence time (duration they stay) in the atmosphere, which ranges from 10 years to more than 100 years. These gases allow solar radiation into the earth's atmosphere, but prevent radioactive heat from escaping, thus warming the earth's atmosphere. GCC can occur naturally as it has in the past with the previous ice ages.

Gases that trap heat in the atmosphere are often referred to as GHGs. GHGs are released into the atmosphere by both natural and anthropogenic (human) activity. Without the natural GHG effect, the earth's average temperature would be approximately 61 degrees Fahrenheit (°F) cooler than it is currently. The cumulative accumulation of these gases in the earth's atmosphere is considered to be the cause for the observed increase in the earth's temperature over the past 200 years.

4.6.2.3 Greenhouse Gases

4.6.2.3.1 GHGs and Health Effects

GHGs trap heat in the atmosphere, creating a GHG effect that results in global warming and climate change. Many gases demonstrate these properties as discussed in Table 4.6-1. For the purposes of this analysis, emissions of CO_2, CH_4, and N_2O were evaluated (see Table 4.6-1 later in this report) because these gases are the primary contributors to GCC from development projects. Although there are other substances such as fluorinated gases that also contribute to GCC, these fluorinated gases were not evaluated as their sources are not well-defined and do not contain accepted emissions factors or methodology to accurately calculate these gases.

Table 4.6-1
CRITERIA POLLUTANTS

Greenhouse Gases	Description	Sources	Health Effects
Water	Water is the most abundant, important, and variable GHG in the atmosphere. Water vapor is not considered a pollutant; in the atmosphere it maintains a climate necessary for life. Changes in its concentration are primarily considered to be a result of climate feedbacks related to the warming of the atmosphere rather than a direct result of industrialization. A climate feedback is an indirect, or secondary, change, either positive or negative, that occurs within the climate system in response to a forcing mechanism. The feedback loop in which water is involved is critically important to projecting future climate change. As the temperature of the atmosphere rises, more water is evaporated from ground storage (rivers, oceans, reservoirs, soil). Because the air is warmer, the relative humidity can be higher (in essence, the air is able to 'hold' more water when it is warmer), leading to more water vapor in the atmosphere. As a GHG, the higher concentration of water vapor is then able to absorb more thermal indirect energy radiated from the Earth, thus further warming the atmosphere. The warmer atmosphere can then hold more water vapor and so on and so on. This is referred to as a "positive feedback loop." The extent to which this positive feedback loop will continue is unknown as there are also dynamics that hold the positive feedback loop in check. As an example, when water vapor increases in the atmosphere, more of it will eventually condense into clouds, which are more able to reflect incoming solar radiation (thus allowing less energy to reach the earth's surface and heat it up).	The main source of water vapor is evaporation from the oceans (approximately 85%). Other sources include evaporation from other water bodies, sublimation (change from solid to gas) from sea ice and snow, and transpiration from plant leaves.	There are no known direct health effects related to water vapor at this time. It should be noted however that when some pollutants react with water vapor, the reaction forms a transport mechanism for some of these pollutants to enter the human body through water vapor.

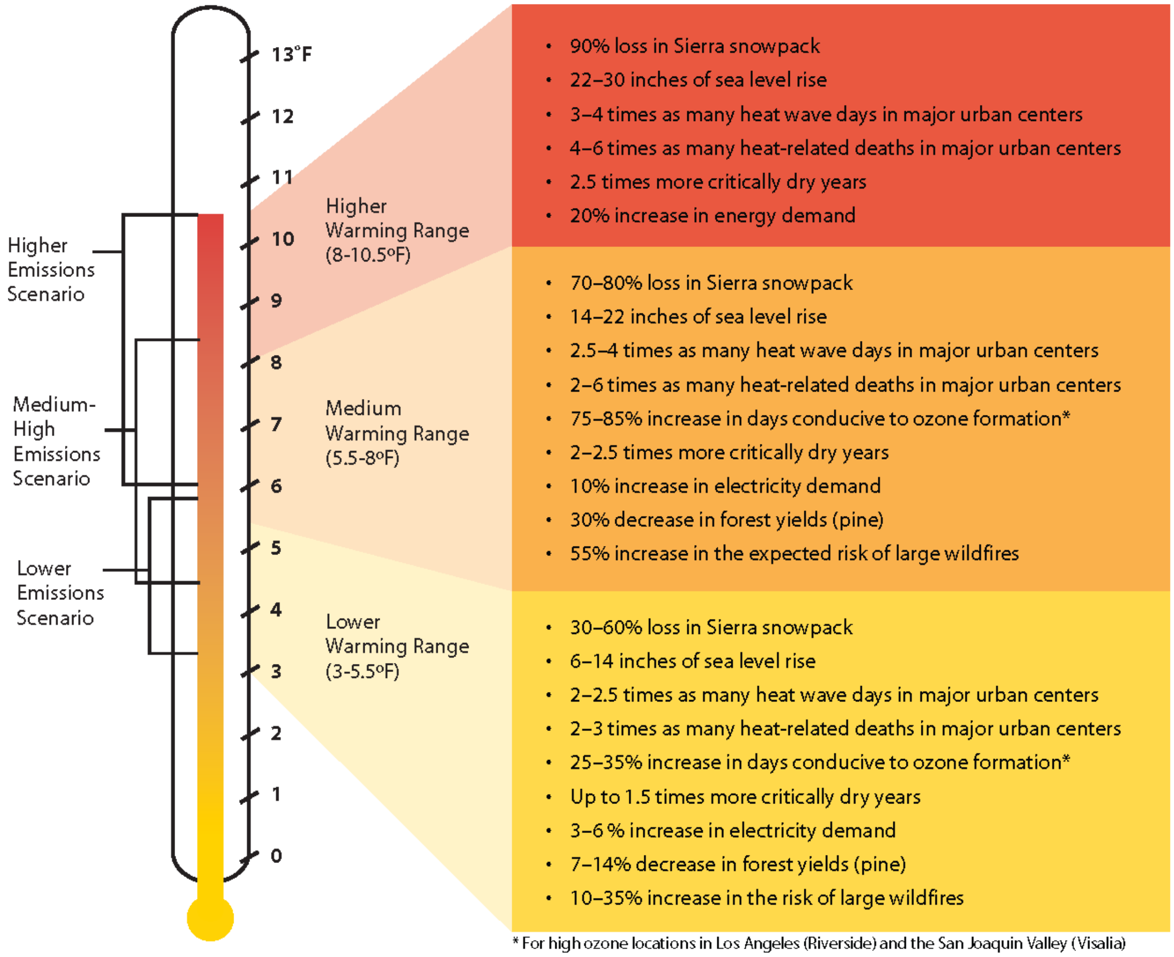
Greenhouse Gases	Description	Sources	Health Effects
CO_2	CO_2 is an odorless and colorless GHG. Since the industrial revolution began in the mid-1700s, the sort of human activity that increases GHG emissions has increased dramatically in scale and distribution. Data from the past 50 years suggests a corollary increase in levels and concentrations. As an example, prior to the industrial revolution, CO_2 concentrations were fairly stable at 280 parts per million (ppm). Today, they are around 370 ppm, an increase of more than 30%. Left unchecked, the concentration of CO_2 in the atmosphere is projected to increase to a minimum of 540 ppm by 2100 as a direct result of anthropogenic sources.	CO_2 is emitted from natural and manmade sources. Natural sources include: the decomposition of dead organic matter; respiration of bacteria, plants, animals and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic sources include: the burning of coal, oil, natural gas, and wood. CO_2 is naturally removed from the air by photosynthesis, dissolution into ocean water, transfer to soils and ice caps, and chemical weathering of carbonate rocks.	Outdoor levels of CO_2 are not high enough to result in negative health effects. According to the National Institute for Occupational Safety and Health (NIOSH) high concentrations of CO_2 can result in health effects such as: headaches, dizziness, restlessness, difficulty breathing, sweating, increased heart rate, increased cardiac output, increased blood pressure, coma, asphyxia, and/or convulsions. It should be noted that current concentrations of CO_2 in the earth's atmosphere are estimated to be approximately 370 ppm, the actual reference exposure level (level at which adverse health effects typically occur) is at exposure levels of 5,000 ppm averaged over 10 hours in a 40-hour workweek and short-term reference exposure levels of 30,000 ppm averaged over a 15 minute period.
CH_4	CH_4 is an extremely effective absorber of radiation, although its atmospheric concentration is less than CO_2 and its lifetime in the atmosphere is brief (10-12 years), compared to other GHGs.	CH_4 has both natural and anthropogenic sources. It is released as part of the biological processes in low oxygen environments, such as in swamplands or in rice production (at the roots of the plants). Over the last 50 years, human activities such as growing rice, raising cattle, using natural gas, and mining coal have added to the atmospheric concentration of CH_4. Other anthropocentric sources include fossil-fuel combustion and biomass burning.	CH_4 is extremely reactive with oxidizers, halogens, and other halogen-containing compounds. Exposure to high levels of CH_4 can cause asphyxiation, loss of consciousness, headache and dizziness, nausea and vomiting, weakness, loss of coordination, and an increased breathing rate.
N_2O	N_2O, also known as laughing gas, is a colorless GHG. Concentrations of N_2O also began to rise at the beginning of the industrial revolution. In 1998, the global concentration was 314 parts per billion (ppb).	N_2O is produced by microbial processes in soil and water, including those reactions which occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to	N_2O can cause dizziness, euphoria, and sometimes slight hallucinations. In small doses, it is considered harmless. However, in some cases, heavy and extended use can cause Olney's Lesions (brain damage).

Greenhouse Gases	Description	Sources	Health Effects
		its atmospheric load. It is used as an aerosol spray propellant, i.e., in whipped cream bottles. It is also used in potato chip bags to keep chips fresh. It is used in rocket engines and in race cars. N_2O can be transported into the stratosphere, be deposited on the earth's surface, and be converted to other compounds by chemical reaction (17).	
Chlorofluorocarbons (CFCs)	CFCs are gases formed synthetically by replacing all hydrogen atoms in CH_4 or ethane (C_2H_6) with chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble and chemically unreactive in the troposphere (the level of air at the earth's surface).	CFCs have no natural source but were first synthesized in 1928. They were used for refrigerants, aerosol propellants and cleaning solvents. Due to the discovery that they are able to destroy stratospheric ozone, a global effort to halt their production was undertaken and was extremely successful, so much so that levels of the major CFCs are now remaining steady or declining. However, their long atmospheric lifetimes mean that some of the CFCs will remain in the atmosphere for over 100 years (18).	In confined indoor locations, working with CFC-113 or other CFCs is thought to result in death by cardiac arrhythmia (heart frequency too high or too low) or asphyxiation.
HFCs	HFCs are synthetic, man-made chemicals that are used as a substitute for CFCs. Out of all the GHGs, they are one of three groups with the highest global warming potential (GWP). The HFCs with the largest measured atmospheric abundances are (in order), fluoroform (CHF_3), 1,1,1,2-tetrafluoroethane (CH_2FCF), and 1,1-difluoroethane (CH_3CF_2). Prior to 1990, the only significant emissions were of CHF_3. CH_2FCF emissions are increasing due to its use as a refrigerant.	HFCs are manmade for applications such as automobile air conditioners and refrigerants.	No health effects are known to result from exposure to HFCs.
PFCs	PFCs have stable molecular structures and do not break down through chemical processes in the lower atmosphere. High-energy ultraviolet rays, which occur about 60 kilometers above earth's surface, are able to destroy the compounds. Because of this, PFCs have	The two main sources of PFCs are primary aluminum production and semiconductor manufacture.	No health effects are known to result from exposure to PFCs.

Greenhouse Gases	Description	Sources	Health Effects
	very long lifetimes, between 10,000 and 50,000 years. Two common PFCs are tetrafluoromethane (CF_4) and hexafluoroethane (C_2F_6). The EPA estimates that concentrations of CF_4 in the atmosphere are over 70 parts per trillion (ppt).		
SF_6	SF_6 is an inorganic, odorless, colorless, nontoxic, nonflammable gas. It also has the highest GWP of any gas evaluated (23,900) (19). The EPA indicates that concentrations in the 1990s were about 4 ppt.	SF_6 is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.	In high concentrations in confined areas, the gas presents the hazard of suffocation because it displaces the oxygen needed for breathing.
Nitrogen Trifluoride (NF_3)	NF_3 is a colorless gas with a distinctly moldy odor. The World Resources Institute (WRI) indicates that NF_3 has a 100-year GWP of 17,200 (20).	NF_3 is used in industrial processes and is produced in the manufacturing of semiconductors, Liquid Crystal Display (LCD) panels, types of solar panels, and chemical lasers.	Long-term or repeated exposure may affect the liver and kidneys and may cause fluorosis (21).

The potential health effects related directly to the emissions of CO_2, CH_4, and N_2O as they relate to development projects, such as the proposed Project, are still being debated in the scientific community. Their cumulative effects to GCC have the potential to cause adverse effects to human health. Increases in Earth’s ambient temperatures would result in more intense heat waves, causing more heat-related deaths. Scientists also purport that higher ambient temperatures would increase disease survival rates and result in more widespread disease. Climate change will likely cause shifts in weather patterns, potentially resulting in devastating droughts and food shortages in some areas. Exhibit 4.6-1 presents the potential impacts of global warming.

Exhibit 4.6-1
Summary of Projected Global Warming Impact, 2070-2099 (as compared with 1961-1990)



Source: Barbara H. Allen-Diaz. “Climate change affects us all.” *University of California, Agriculture and Natural Resources*, 2009.

4.6.2.4 Global Warming Potential

GHGs have varying GWP values. GWP of a GHG indicates the amount of warming a gas causes over a given period of time and represents the potential of a gas to trap heat in the atmosphere. CO_2 is utilized as the reference gas for GWP, and thus has a GWP of 1. CO_2 equivalent (CO_2e) is a term used for describing the difference GHGs in a common unit. CO_2e signifies the amount of CO_2 which would have the equivalent GWP.

The atmospheric lifetime and GWP of selected GHGs are summarized at Table 4.6-2. As shown in the table below, GWP for the Second Assessment Report, the Intergovernmental Panel on Climate Change (IPCC)’s scientific and socio-economic assessment on climate change, range from 1 for CO_2 to 23,900 for SF_6 and GWP for the IPCC’s 5th Assessment Report range from 1 for CO_2 to 23,500 for SF_6.

Table 4.6-2
GWP AND ATMOSPHERIC LIFETIME OF SELECT GHGS

Gas	Atmospheric Lifetime (years)	Global Warming Potential (100-year time horizon)	
		Second Assessment Report	5th Assessment Report
CO_2	See*	1	1
CH_4	12 .4	21	28
N_2O	121	310	265
HFC-23	222	11,700	12,400
HFC-134a	13.4	1,300	1,300
HFC-152a	1.5	140	138
SF_6	3,200	23,900	23,500

*As per Appendix 8.A. of IPCC's 5th Assessment Report, no single lifetime can be given.
Source: Table 2.14 of the IPCC Fourth Assessment Report, 2007

4.6.2.5 Greenhouse Gas Emissions Inventory

4.6.2.5.1 Global

Worldwide anthropogenic GHG emissions are tracked by the IPCC for industrialized nations (referred to as Annex I) and developing nations (referred to as Non-Annex I). Human GHG emissions data for Annex I nations are available through 2017. Based on the latest available data, the sum of these emissions totaled approximately 29,216,501 gigagram (Gg) CO_2e[1] as summarized on Table 4.6-3.

4.6.2.5.2 United States

As noted in Table 4.6-3, the United States, as a single country, was the number two producer of GHG emissions in 2017.

Table 4.6-3
TOP GHG PRODUCING COUNTRIES AND THE EUROPEAN UNION[2]

Emitting Countries	GHG Emissions (Gg CO_2e)
China	11,911,710
United States	6,456,718
European Union (28-member countries)	4,323,163
India	3,079,810
Russian Federation	2,155,470
Japan	1,289,630
Total	**29,216,501**

[1] The global emissions are the sum of Annex I and non-Annex I countries, without counting Land-Use, Land-Use Change and Forestry (LULUCF). For countries without 2017 data, the United Nations' Framework Convention on Climate Change (UNFCCC) data for the most recent year were used. United Nations Framework Convention on Climate Change, "Annex I Parties – GHG total without LULUCF," The most recent GHG emissions for China and India are from 2014.
[2] Used http://unfccc.int data for Annex I countries. Consulted the CAIT Climate Data Explorer in https://www.climatewatchdata.org site to reference Non-Annex I countries of China and India.

4.6.2.5.3 State of California

California has significantly slowed the rate of growth of GHG emissions due to the implementation of energy efficiency programs as well as adoption of strict emission controls, but is still a substantial contributor to the United States (U.S.) emissions inventory total. The California Air Resource Board (CARB) compiles GHG inventories for the State of California. Based upon the 2019 GHG inventory data (i.e., the latest year for which data are available) for the 2000-2017 GHG emissions period, California emitted an average 424.1 million metric tons of CO_2e per year ($MMTCO_2e$/yr).

4.6.2.6 Effects of Climate Change in California

4.6.2.6.1 Public Health

Higher temperatures may increase the frequency, duration, and intensity of conditions conducive to air pollution formation. For example, days with weather conducive to ozone formation could increase from 25 to 35% under the lower warming range to 75 to 85% under the medium warming range. In addition, if global background ozone levels increase as predicted in some scenarios, it may become impossible to meet local air quality standards. Air quality could be further compromised by increases in wildfires, which emit fine particulate matter that can travel long distances, depending on wind conditions. The Climate Scenarios report indicates that large wildfires could become up to 55% more frequent if GHG emissions are not significantly reduced.

In addition, under the higher warming range scenario, there could be up to 100 more days per year with temperatures above 90°F in Los Angeles and 95°F in Sacramento by 2100. This is a large increase over historical patterns and approximately twice the increase projected if temperatures remain within or below the lower warming range. Rising temperatures could increase the risk of death from dehydration, heat stroke/exhaustion, heart attack, stroke, and respiratory distress caused by extreme heat.

4.6.2.6.2 Water Resources

A vast network of man-made reservoirs and aqueducts captures and transports water throughout the state from northern California rivers and the Colorado River. The current distribution system relies on Sierra Nevada snowpack to supply water during the dry spring and summer months. Rising temperatures, potentially compounded by decreases in precipitation, could severely reduce spring snowpack, increasing the risk of summer water shortages.

If temperatures continue to increase, more precipitation could fall as rain instead of snow, and the snow that does fall could melt earlier, reducing the Sierra Nevada spring snowpack by as much as 70 to 90%. Under the lower warming range scenario, snowpack losses could be only half as large as those possible if temperatures were to rise to the higher warming range. How much snowpack could be lost depends in part on future precipitation patterns, the projections for which remain uncertain. However, even under the wetter climate projections, the loss of snowpack could pose challenges to water managers and hamper hydropower generation. It could also adversely affect winter tourism. Under the lower warming range, the ski season at lower elevations could be reduced by as much as a month. If temperatures reach the higher warming range and precipitation declines, there might be many years with insufficient snow for skiing and snowboarding.

The State's water supplies are also at risk from rising sea levels. An influx of saltwater could degrade California's estuaries, wetlands, and groundwater aquifers. Saltwater intrusion caused by rising sea levels is a major threat to the quality and reliability of water within the southern edge of the Sacramento/San Joaquin River Delta – a major fresh water supply.

4.6.2.6.3 Agriculture

Increased temperatures could cause widespread changes to the agriculture industry reducing the quantity and quality of agricultural products statewide. First, California farmers could possibly lose as much as 25% of the water supply needed. Although higher CO_2 levels can stimulate plant production and increase plant water-use efficiency, California's farmers could face greater water demand for crops and a less reliable water supply as temperatures rise. Crop growth and development could change, as could the intensity and frequency of pest and disease outbreaks. Rising temperatures could aggravate ozone pollution, which makes plants more susceptible to disease and pests and interferes with plant growth.

Plant growth tends to be slow at low temperatures, increasing with rising temperatures up to a threshold. However, faster growth can result in less-than-optimal development for many crops, so rising temperatures could worsen the quantity and quality of yield for a number of California's agricultural products. Products likely to be most affected include wine grapes, fruits and nuts.

In addition, continued GCC could shift the ranges of existing invasive plants and weeds and alter competition patterns with native plants. Range expansion could occur in many species while range contractions may be less likely in rapidly evolving species with significant populations already established. Should range contractions occur, new or different weed species could fill the emerging gaps. Continued GCC could alter the abundance and types of many pests, lengthen pests' breeding season, and increase pathogen growth rates.

4.6.2.6.4 Forests and Landscapes

GCC has the potential to intensify the current threat to forests and landscapes by increasing the risk of wildfire and altering the distribution and character of natural vegetation. If temperatures rise into the medium warming range, the risk of large wildfires in California could increase by as much as 55%, which is almost twice the increase expected if temperatures stay in the lower warming range. However, since wildfire risk is determined by a combination of factors, including precipitation, winds, temperature, and landscape and vegetation conditions, future risks will not be uniform throughout the state. In contrast, wildfires in northern California could increase by up to 90% due to decreased precipitation.

Moreover, continued GCC has the potential to alter natural ecosystems and biological diversity within the state. For example, alpine and subalpine ecosystems could decline by as much as 60 to 80% by the end of the century as a result of increasing temperatures. The productivity of the state's forests has the potential to decrease as a result of GCC.

Rising Sea Levels

Rising sea levels, more intense coastal storms, and warmer water temperatures could increasingly threaten the state's coastal regions. Under the higher warming range scenario, sea level is anticipated to rise 22 to 35 inches by 2100. Elevations of this magnitude would inundate low-lying coastal areas with saltwater, accelerate coastal erosion, threaten vital levees and inland water systems, and disrupt wetlands and natural habitats. Under the lower warming range scenario, sea level could rise 12-14 inches.

4.6.3 Regulatory Setting

4.6.3.1 International

Climate change is a global issue involving GHG emissions from all around the world; therefore, countries such as the ones discussed below have made an effort to reduce GHGs.

4.6.3.1.1 IPCC

In 1988, the United Nations (U.N.) and the World Meteorological Organization established the IPCC to assess the scientific, technical and socioeconomic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts, and options for adaptation and mitigation.

4.6.3.1.2 United Nation's Framework Convention on Climate Change (Convention)

On March 21, 1994, the U.S. joined a number of countries around the world in signing the Convention. Under the Convention, governments gather and share information on GHG emissions, national policies, and best practices; launch national strategies for addressing GHG emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change.

4.6.3.1.3 International Climate Change Treaties

The Kyoto Protocol is an international agreement linked to the Convention. The major feature of the Kyoto Protocol is that it sets binding targets for 37 industrialized countries and the European community for reducing GHG emissions at an average of 5% against 1990 levels over the five-year period 2008–2012. The Convention (as discussed above) encouraged industrialized countries to stabilize emissions; however, the Protocol commits them to do so. Developed countries have contributed more emissions over the last 150 years; therefore, the Protocol places a heavier burden on developed nations under the principle of "common but differentiated responsibilities."

In 2001, President George W. Bush indicated that he would not submit the treaty to the U.S. Senate for ratification, which effectively ended American involvement in the Kyoto Protocol. In December 2009, international leaders met in Copenhagen to address the future of international climate change commitments post-Kyoto. No binding agreement was reached in Copenhagen; however, the Committee identified the long-term goal of limiting the maximum global average temperature increase to no more than 2 degrees Celsius (°C) above pre-industrial levels, subject to a review in 2015. The UN Climate Change Committee held additional meetings in Durban, South Africa in November 2011; Doha, Qatar in November 2012; and Warsaw, Poland in November 2013. The meetings are gradually gaining consensus among participants on individual climate change issues.

On September 23, 2014 more than 100 Heads of State and Government and leaders from the private sector and civil society met at the Climate Summit in New York hosted by the U.N. At the Summit, heads of government, business and civil society announced actions in areas that would have the greatest impact on reducing emissions, including climate finance, energy, transport, industry, agriculture, cities, forests, and building resilience.

Parties to the U.N. Framework Convention on Climate Change (UNFCCC) reached a landmark agreement on December 12, 2015 in Paris, charting a fundamentally new course in the two-decade-old global climate effort. Culminating a four-year negotiating round, the new treaty ends the strict differentiation between developed and developing countries that characterized earlier efforts, replacing it with a common framework that commits all countries to put forward their best efforts and to strengthen them in the years ahead. This includes, for the first time, requirements that all parties report regularly on their emissions and implementation efforts and undergo international review.

The agreement and a companion decision by parties were the key outcomes of the conference, known as the 21st session of the UNFCCC Conference of the Parties (COP) 21. Together, the Paris Agreement and the accompanying COP decision:

- Reaffirm the goal of limiting global temperature increase well below 2°C, while urging efforts to limit the increase to 1.5 degrees;
- Establish binding commitments by all parties to make "nationally determined contributions" (NDCs), and to pursue domestic measures aimed at achieving them;
- Commit all countries to report regularly on their emissions and "progress made in implementing and achieving" their NDCs, and to undergo international review;
- Commit all countries to submit new NDCs every five years, with the clear expectation that they will "represent a progression" beyond previous ones;
- Reaffirm the binding obligations of developed countries under the UNFCCC to support the efforts of developing countries, while for the first time encouraging voluntary contributions by developing countries too;
- Extend the current goal of mobilizing $100 billion a year in support by 2020 through 2025, with a new, higher goal to be set for the period after 2025;
- Extend a mechanism to address "loss and damage" resulting from climate change, which explicitly will not "involve or provide a basis for any liability or compensation;"
- Require parties engaging in international emissions trading to avoid "double counting;" and
- Call for a new mechanism, similar to the Clean Development Mechanism under the Kyoto Protocol, enabling emission reductions in one country to be counted toward another country's NDC (C2ES 2015a).

On November 4, 2019, the Trump administration formally notified the U.N. that the United States would withdraw from the Paris Agreement. It should be noted that withdrawal would be effective one year after notification in 2020.

4.6.3.2 National

Prior to the last decade, there have been no concrete federal regulations of GHGs or major planning for climate change adaptation. The following are actions regarding the federal government, GHGs, and fuel efficiency.

4.6.3.2.1 GHG Endangerment

In *Massachusetts v. Environmental Protection Agency* 549 U.S. 497 (2007), decided on April 2, 2007, the United States Supreme Court (U.S. Court) found that four GHGs, including CO_2, are air pollutants subject to regulation under Section 202(a)(1) of the Clean Air Act (CAA). The Court held that the EPA Administrator must determine whether emissions of GHGs from new motor vehicles cause or contribute to air pollution, which may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. On

December 7, 2009, the EPA Administrator signed two distinct findings regarding GHGs under section 202(a) of the CAA:

Endangerment Finding: The Administrator finds that the current and projected concentrations of the six key well-mixed GHGs— CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6—in the atmosphere threaten the public health and welfare of current and future generations.

Cause or Contribute Finding: The Administrator finds that the combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution, which threatens public health and welfare.

These findings do not impose requirements on industry or other entities. However, this was a prerequisite for implementing GHG emissions standards for vehicles, as discussed in the section "Clean Vehicles" below. After a lengthy legal challenge, the U.S. Court declined to review an Appeals Court ruling that upheld the EPA Administrator's findings.

4.6.3.2.2 Clean Vehicles

Congress first passed the Corporate Average Fuel Economy law in 1975 to increase the fuel economy of cars and light duty trucks. The law has become more stringent over time. On May 19, 2009, President Obama put in motion a new national policy to increase fuel economy for all new cars and trucks sold in the U.S. On April 1, 2010, the EPA and the Department of Transportation's National Highway Traffic Safety Administration (NHTSA) announced a joint final rule establishing a national program that would reduce GHG emissions and improve fuel economy for new cars and trucks sold in the U.S.

The first phase of the national program applies to passenger cars, light-duty trucks, and medium-duty (MD) passenger vehicles, covering model years 2012 through 2016. They require these vehicles to meet an estimated combined average emissions level of 250 grams of CO_2 per mile, equivalent to 35.5 miles per gallon (mpg) if the automobile industry were to meet this CO_2 level solely through fuel economy improvements. Together, these standards would cut CO_2 emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012–2016). The EPA and the NHTSA issued final rules on a second-phase joint rulemaking establishing national standards for light-duty vehicles for model years 2017 through 2025 in August 2012. The new standards for model years 2017 through 2025 apply to passenger cars, light-duty trucks, and MD passenger vehicles. The final standards are projected to result in an average industry fleetwide level of 163 grams/mile of CO_2 in model year 2025, which is equivalent to 54.5 mpg if achieved exclusively through fuel economy improvements.

The EPA and the U.S. Department of Transportation issued final rules for the first national standards to reduce GHG emissions and improve fuel efficiency of heavy-duty trucks (HDT) and buses on September 15, 2011, effective November 14, 2011. For combination tractors, the agencies are proposing engine and vehicle standards that begin in the 2014 model year and achieve up to a 20% reduction in CO_2 emissions and fuel consumption by the 2018 model year. For HDT and vans, the agencies are proposing separate gasoline and diesel truck standards, which phase in starting in the 2014 model year and achieve up to a 10% reduction for gasoline vehicles and a 15% reduction for diesel vehicles by the 2018 model year (12 and 17% respectively if accounting for air conditioning leakage). Lastly, for vocational vehicles, the engine and vehicle standards would achieve up to a 10% reduction in fuel consumption and CO_2 emissions from the 2014 to 2018 model years.

On April 2, 2018, the EPA signed the Mid-term Evaluation Final Determination, which finds that the model year 2022-2025 GHG standards are not appropriate and should be revised. This Final Determination serves to initiate a notice to further consider appropriate standards for model year 2022-2025 light-duty vehicles. On August 24, 2018, the EPA and NHTSA published a proposal to freeze the model year 2020 standards through model year 2026 and to revoke California's waiver under the CAA to establish more stringent standards.

4.6.3.2.3 Mandatory Reporting of GHGs

The Consolidated Appropriations Act of 2008, passed in December 2007, requires the establishment of mandatory GHG reporting requirements. On September 22, 2009, the EPA issued the Final Mandatory Reporting of GHGs Rule, which became effective January 1, 2010. The rule requires reporting of GHG emissions from large sources and suppliers in the U.S. and is intended to collect accurate and timely emissions data to inform future policy decisions. Under the rule, suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons per year (MT/yr) or more of GHG emissions are required to submit annual reports to the EPA.

4.6.3.2.4 New Source Review

The EPA issued a final rule on May 13, 2010, that establishes thresholds for GHGs that define when permits under the New Source Review Prevention of Significant Deterioration and Title V Operating Permit programs are required for new and existing industrial facilities. This final rule "tailors" the requirements of these CAA permitting programs to limit which facilities will be required to obtain Prevention of Significant Deterioration and Title V permits. In the preamble to the revisions to the Federal Code of Regulations, the EPA states:

> *"This rulemaking is necessary because without it the Prevention of Significant Deterioration and Title V requirements would apply, as of January 2, 2011, at the 100 or 250 tons per year levels provided under the CAA, greatly increasing the number of required permits, imposing undue costs on small sources, overwhelming the resources of permitting authorities, and severely impairing the functioning of the programs. EPA is relieving these resource burdens by phasing in the applicability of these programs to GHG sources, starting with the largest GHG emitters. This rule establishes two initial steps of the phase-in. The rule also commits the agency to take certain actions on future steps addressing smaller sources but excludes certain smaller sources from Prevention of Significant Deterioration and Title V permitting for GHG emissions until at least April 30, 2016."*

The EPA estimates that facilities responsible for nearly 70% of the national GHG emissions from stationary sources will be subject to permitting requirements under this rule. This includes the nation's largest GHG emitters—power plants, refineries, and cement production facilities.

4.6.3.2.5 Standards of Performance for GHG Emissions for New Stationary Sources: Electric Utility Generating Units

As required by a settlement agreement, the EPA proposed new performance standards for emissions of CO2 for new, affected, fossil fuel-fired electric utility generating units on March 27, 2012. New sources greater than 25 megawatts (MW) would be required to meet an output-based standard of 1,000 pounds (lbs) of CO2 per MW-hour (MWh), based on the performance of widely used natural gas combined cycle technology. It should be noted that on February 9, 2016 the U.S. Court issued a stay of this regulation pending litigation. Additionally, the current EPA Administrator has also signed a measure to repeal the Clean Power Plan, including the CO2 standards. The Clean Power Plan was officially repealed on June 19, 2019, when the EPA issued the final

Affordable Clean Energy rule (ACE). Under ACE, new state emission guidelines were established that provided existing coal-fired electric utility generating units with achievable standards.''

4.6.3.2.6 Cap-and-Trade

Cap-and-trade refers to a policy tool where emissions are limited to a certain amount and can be traded or provides flexibility on how the emitter can comply. Successful examples in the U.S. include the Acid Rain Program and the N_2O Budget Trading Program and Clean Air Interstate Rule in the northeast. There is no federal GHG cap-and-trade program currently; however, some states have joined to create initiatives to provide a mechanism for cap-and-trade.

The Regional GHG Initiative is an effort to reduce GHGs among the states of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont. Each state caps CO_2 emissions from power plants, auctions CO_2 emission allowances, and invests the proceeds in strategic energy programs that further reduce emissions, save consumers money, create jobs, and build a clean energy economy. The Initiative began in 2008 and in 2020 has retained all participating states.

The Western Climate Initiative (WCI) partner jurisdictions have developed a comprehensive initiative to reduce regional GHG emissions to 15% below 2005 levels by 2020. The partners were originally California, British Columbia, Manitoba, Ontario, and Quebec. However, Manitoba and Ontario are not currently participating. California linked with Quebec's cap-and-trade system January 1, 2014, and joint offset auctions took place in 2015. While the WCI has yet to publish whether it has successfully reached the 2020 emissions goal initiative set in 2007, SB 32, requires that California, a major partner in the WCI, adopt the goal of reducing statewide GHG emissions to 40% below the 1990 level by 2030.

4.6.3.2.7 SmartWay Program

The SmartWay Program is a public-private initiative between the EPA, large and small trucking companies, rail carriers, logistics companies, commercial manufacturers, retailers, and other federal and state agencies. Its purpose is to improve fuel efficiency and the environmental performance (reduction of both GHG emissions and air pollution) of the goods movement supply chains. SmartWay is comprised of four components:

1. SmartWay Transport Partnership: A partnership in which freight carriers and shippers commit to benchmark operations, track fuel consumption, and improve performance annually.
2. SmartWay Technology Program: A testing, verification, and designation program to help freight companies identify equipment, technologies, and strategies that save fuel and lower emissions.
3. SmartWay Vehicles: A program that ranks light-duty cars and small trucks and identifies superior environmental performers with the SmartWay logo.
4. SmartWay International Interests: Guidance and resources for countries seeking to develop freight sustainability programs modeled after SmartWay.

SmartWay effectively refers to requirements geared towards reducing fuel consumption. Most large trucking fleets driving newer vehicles are compliant with SmartWay design requirements. Moreover, over time, all HDTs will have to comply with the CARB GHG Regulation that is designed with the SmartWay Program in mind, to reduce GHG emissions by making them more fuel-efficient. For instance, in 2015, 53 foot or longer dry vans or refrigerated trailers equipped with a combination of SmartWay-verified low-rolling resistance tires and SmartWay-verified aerodynamic devices would obtain a total of 10% or more fuel savings over traditional trailers.

Through the SmartWay Technology Program, the EPA has evaluated the fuel saving benefits of various devices through grants, cooperative agreements, emissions and fuel economy testing, demonstration projects and technical literature review. As a result, the EPA has determined the following types of technologies provide fuel saving and/or emission reducing benefits when used properly in their designed applications, and has verified certain products:

- Idle reduction technologies – less idling of the engine when it is not needed would reduce fuel consumption.
- Aerodynamic technologies minimize drag and improve airflow over the entire tractor-trailer vehicle. Aerodynamic technologies include gap fairings that reduce turbulence between the tractor and trailer, side skirts that minimize wind under the trailer, and rear fairings that reduce turbulence and pressure drop at the rear of the trailer.
- Low rolling resistance tires can roll longer without slowing down, thereby reducing the amount of fuel used. Rolling resistance (or rolling friction or rolling drag) is the force resisting the motion when a tire rolls on a surface. The wheel will eventually slow down because of this resistance.
- Retrofit technologies include things such as diesel particulate filters, emissions upgrades (to a higher tier), etc., which would reduce emissions.
- Federal excise tax exemptions.

4.6.3.3 California

4.6.3.3.1 Legislative Actions to Reduce GHGs

The State of California legislature has enacted a series of bills that constitute the most aggressive program to reduce GHGs of any state in the nation. Some legislation such as the landmark AB 32 was specifically enacted to address GHG emissions. Other legislation such as Title 24 and Title 20 energy standards were originally adopted for other purposes such as energy and water conservation, but also provide GHG reductions. This section describes the major provisions of the legislation.

4.6.3.3.2 AB 32

The California State Legislature enacted AB 32, which required that GHGs emitted in California be reduced to 1990 levels by the year 2020 (this goal has been met[3]). GHGs as defined under AB 32 include CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6. Since AB 32 was enacted, a seventh chemical, nitrogen trifluoride, has also been added to the list of GHGs. The CARB is the state agency charged with monitoring and regulating sources of GHGs. AB 32 states the following:

> *"Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems."*

[3] Based upon the 2019 GHG inventory data (i.e., the latest year for which data are available) for the 2000-2017 GHG emissions period, California emitted an average 424.1 $MMTCO_2e$. This is less than the 2020 emissions target of 431 $MMTCO_2e$.

4.6.3.3.3 SB 32

On September 8, 2016, Governor Jerry Brown signed the SB 32 and its companion bill, AB 197. SB 32 requires the state to reduce statewide GHG emissions to 40% below 1990 levels by 2030, a reduction target that was first introduced in Executive Order B-30-15. The new legislation builds upon the AB 32 goal and provides an intermediate goal to achieving S-3-05, which sets a statewide GHG reduction target of 80% below 1990 levels by 2050. AB 197 creates a legislative committee to oversee regulators to ensure that CARB not only responds to the Governor, but also the Legislature.

4.6.3.3.4 CARB Scoping Plan Update

In November 2017, CARB released the *Final 2017 Scoping Plan Update*, which identifies the State's post-2020 reduction strategy. The *Final 2017 Scoping Plan Update* reflects the 2030 target of a 40% reduction below 1990 levels, set by Executive Order B-30-15 and codified by SB 32. Key programs that the proposed Second Update builds upon include the Cap-and-Trade Regulation, the LCFS, and much cleaner cars, trucks and freight movement, utilizing cleaner, renewable energy, and strategies to reduce CH_4 emissions from agricultural and other wastes.

The *Final 2017 Scoping Plan Update* establishes a new emissions limit of 260 $MMTCO_2e$ for the year 2030, which corresponds to a 40% decrease in 1990 levels by 2030.

California's climate strategy will require contributions from all sectors of the economy, including the land base, and will include enhanced focus on zero- and near-zero-emission (ZE/NZE) vehicle technologies; continued investment in renewables, including solar roofs, wind, and other distributed generation; greater use of low carbon fuels; integrated land conservation and development strategies; coordinated efforts to reduce emissions of short-lived climate pollutants (CH_4, black carbon, and fluorinated gases); and an increased focus on integrated land use planning to support livable, transit-connected communities and conservation of agricultural and other lands. Requirements for direct GHG reductions at refineries will further support air quality co-benefits in neighborhoods, including in disadvantaged communities historically located adjacent to these large stationary sources, as well as efforts with California's local air pollution control and air quality management districts (air districts) to tighten emission limits on a broad spectrum of industrial sources. Major elements of the *Final 2017 Scoping Plan Update* framework include:

- Implementing and/or increasing the standards of the Mobile Source Strategy, which include increasing ZEV buses and trucks.
- LCFS, with an increased stringency (18% by 2030).
- Implementing SB 350, which expands the RPS to 50% RPS and doubles energy efficiency savings by 2030.
- California Sustainable Freight Action Plan, which improves freight system efficiency, utilizes near-zero emissions technology, and deployment of zero-emission vehicles (ZEV) trucks.
- Implementing the proposed Short-Lived Climate Pollutant Strategy (SLPS), which focuses on reducing CH_4 and hydroflurocarbon emissions by 40% and anthropogenic black carbon emissions by 50% by year 2030.
- Continued implementation of SB 375.
- Post-2020 Cap-and-Trade Program that includes declining caps.
- 20% reduction in GHG emissions from refineries by 2030.
- Development of a Natural and Working Lands Action Plan to secure California's land base as a net carbon sink.

Note, however, that the *Final 2017 Scoping Plan Update* acknowledges that:

> *"[a]chieving net zero increases in GHG emissions, resulting in no contribution to GHG impacts, may not be feasible or appropriate for every project, however, and the inability of a project to mitigate its GHG emissions to net zero does not imply the project results in a substantial contribution to the cumulatively significant environmental impact of climate change under CEQA."*

In addition to the statewide strategies listed above, the *Final 2017 Scoping Plan Update* also identifies local governments as essential partners in achieving the State's long-term GHG reduction goals and identifies local actions to reduce GHG emissions. As part of the recommended actions, CARB recommends that local governments achieve a community-wide goal to achieve emissions of no more than 6 metric tons of CO_2e ($MTCO_2e$) or less per capita by 2030 and 2 $MTCO_2e$ or less per capita by 2050. For CEQA projects, CARB states that lead agencies may develop evidenced-based bright-line numeric thresholds—consistent with the Scoping Plan and the State's long-term GHG goals—and projects with emissions over that amount may be required to incorporate on-site design features and mitigation measures that avoid or minimize project emissions to the degree feasible; or, a performance-based metric using a CAP or other plan to reduce GHG emissions is appropriate.

According to research conducted by the Lawrence Berkeley National Laboratory (LBNL) and supported by CARB, California, under its existing and proposed GHG reduction policies, could achieve the 2030 goals under SB 32. The research utilized a new, validated model known as the California LBNL GHG Analysis of Policies Spreadsheet (CALGAPS), which simulates GHG and criteria pollutant emissions in California from 2010 to 2050 in accordance to existing and future GHG-reducing policies. The CALGAPS model showed that by 2030, emissions could range from 211 to 428 $MTCO_2e$ per year ($MTCO_2e$/yr), indicating that "even if all modeled policies are not implemented, reductions could be sufficient to reduce emissions 40% below the 1990 level [of SB 32]." CALGAPS analyzed emissions through 2050 even though it did not generally account for policies that might be put in place after 2030. Although the research indicated that the emissions would not meet the State's 80% reduction goal by 2050, various combinations of policies could allow California's cumulative emissions to remain very low through 2050

4.6.3.3.5 Cap-and-Trade Program

The Scoping Plan identifies a Cap-and-Trade Program as one of the key strategies for California to reduce GHG emissions. According to CARB, a cap-and-trade program will help put California on the path to meet its goal of achieving a 40% reduction in GHG emissions from 1990 levels by 2030. Under cap-and-trade, an overall limit on GHG emissions from capped sectors is established, and facilities subject to the cap will be able to trade permits to emit GHGs within the overall limit.

CARB adopted a California Cap-and-Trade Program pursuant to its authority under AB 32. The Cap-and-Trade Program is designed to reduce GHG emissions from regulated entities by more than 16% between 2013 and 2020, and by an additional 40% by 2030. The statewide cap for GHG emissions from the capped sectors (e.g., electricity generation, petroleum refining, and cement production) commenced in 2013 and will decline over time, achieving GHG emission reductions throughout the program's duration.

Covered entities that emit more than 25.000 $MTCO_2e$/yr must comply with the Cap-and-Trade Program. Triggering of the 25.000 $MTCO_2e$/yr "inclusion threshold" is measured against a subset of emissions reported and verified under the California Regulation for the Mandatory Reporting of GHG Emissions (Mandatory Reporting Rule or "MRR").

Under the Cap-and-Trade Program, CARB issues allowances equal to the total amount of allowable emissions over a given compliance period and distributes these to regulated entities. Covered entities are allocated free allowances in whole or part (if eligible), and may buy allowances at auction, purchase allowances from others, or purchase offset credits. Each covered entity with a compliance obligation is required to surrender "compliance instruments" for each $MTCO_2e$ of GHG they emit. There also are requirements to surrender compliance instruments covering 30% of the prior year's compliance obligation by November of each year.

The Cap-and-Trade Program provides a firm cap, which provides the highest certainty of achieving the 2030 target. An inherent feature of the Cap-and-Trade program is that it does not guarantee GHG emissions reductions in any discrete location or by any particular source. Rather, GHG emissions reductions are only guaranteed on an accumulative basis. As summarized by CARB in the *First Update to the Climate Change Scoping Plan*:

> *"The Cap-and-Trade Regulation gives companies the flexibility to trade allowances with others or take steps to cost-effectively reduce emissions at their own facilities. Companies that emit more have to turn in more allowances or other compliance instruments. Companies that can cut their GHG emissions have to turn in fewer allowances. But as the cap declines, aggregate emissions must be reduced. In other words, a covered entity theoretically could increase its GHG emissions every year and still comply with the Cap-and-Trade Program if there is a reduction in GHG emissions from other covered entities. Such a focus on aggregate GHG emissions is considered appropriate because climate change is a global phenomenon, and the effects of GHG emissions are considered cumulative."*

The Cap-and-Trade Program covered approximately 80% of California's GHG emissions (34). The Cap-and-Trade Program covers the GHG emissions associated with electricity consumed in California, whether generated in-state or imported. Accordingly, GHG emissions associated with CEQA projects' electricity usage are covered by the Cap-and-Trade Program. The Cap-and-Trade Program also covers fuel suppliers (natural gas and propane fuel providers and transportation fuel providers) to address emissions from such fuels and from combustion of other fossil fuels not directly covered at large sources in the Program's first compliance period. The Cap-and-Trade Program covers the GHG emissions associated with the combustion of transportation fuels in California, whether refined in-state or imported.

4.6.3.3.6 The Sustainable Communities and Climate Protection Act of 2008 (SB 375)

Passing the Senate on August 30, 2008, SB 375 was signed by the Governor on September 30, 2008. According to SB 375, the transportation sector is the largest contributor of GHG emissions, which emits over 40% of the total GHG emissions in California. SB 375 states, "Without improved land use and transportation policy, California will not be able to achieve the goals of AB 32." SB 375 does the following: it (1) requires metropolitan planning organizations (MPO) to include sustainable community strategies in their regional transportation plans for reducing GHG emissions, (2) aligns planning for transportation and housing, and (3) creates specified incentives for the implementation of the strategies.

Concerning CEQA, SB 375, as codified in Public Resources Code Section 21159.28, states that CEQA findings for certain projects are not required to reference, describe, or discuss (1) growth inducing impacts, or (2) any project-specific or cumulative impacts from cars and light-duty truck trips generated by the project on global warming or the regional transportation network, if the project:

1. Is in an area with an approved sustainable communities strategy or an alternative planning strategy that the CARB accepts as achieving the GHG emission reduction targets.
2. Is consistent with that strategy (in designation, density, building intensity, and applicable policies).
3. Incorporates the mitigation measures required by an applicable prior environmental document.

4.6.3.3.7 AB 1493

California AB 1493, enacted on July 22, 2002, required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. Implementation of the regulation was delayed by lawsuits filed by automakers and by the EPA's denial of an implementation waiver. The EPA subsequently granted the requested waiver in 2009, which was upheld by the U.S. District Court for the District of Columbia in 2011.

The standards phase in during the 2009 through 2016 model years. When fully phased in, the near-term (2009–2012) standards will result in about a 22% reduction compared with the 2002 fleet, and the mid-term (2013–2016) standards will result in about a 30% reduction. Several technologies stand out as providing significant reductions in emissions at favorable costs. These include discrete variable valve lift or camless valve actuation to optimize valve operation rather than relying on fixed valve timing and lift as has historically been done; turbocharging to boost power and allow for engine downsizing; improved multi-speed transmissions; and improved air conditioning systems that operate optimally, leak less, and/or use an alternative refrigerant.

The second phase of the implementation for the Pavley bill was incorporated into Amendments to the Low-Emission Vehicle Program (LEV III) or the Advanced Clean Cars program. The Advanced Clean Car program combines the control of smog-causing pollutants and GHG emissions into a single coordinated package of requirements for model years 2017 through 2025. The regulation will reduce GHGs from new cars by 34% from 2016 levels by 2025. The new rules will clean up gasoline and diesel-powered cars, and deliver increasing numbers of zero-emission technologies, such as full battery electric cars, newly emerging plug-in hybrid EVs (EV) and hydrogen fuel cell cars. The package will also ensure adequate fueling infrastructure is available for the increasing numbers of hydrogen fuel cell vehicles planned for deployment in California.

4.6.3.3.8 Clean Energy and Pollution Reduction Act of 2015 (SB 350)

In October 2015, the legislature approved, and the Governor signed SB 350, which reaffirms California's commitment to reducing its GHG emissions and addressing climate change. Key provisions include an increase in the RPS, higher energy efficiency requirements for buildings, initial strategies towards a regional electricity grid, and improved infrastructure for EV charging stations. Provisions for a 50% reduction in the use of petroleum statewide were removed from the Bill because of opposition and concern that it would prevent the Bill's passage. Specifically, SB 350 requires the following to reduce statewide GHG emissions:

- Increase the amount of electricity procured from renewable energy sources from 33% to 50% by 2030, with interim targets of 40% by 2024, and 25% by 2027.
- Double the energy efficiency in existing buildings by 2030. This target will be achieved through the California Public Utility Commission (CPUC), the California Energy Commission (CEC), and local publicly owned utilities.

- Reorganize the Independent System Operator to develop more regional electrify transmission markets and to improve accessibility in these markets, which will facilitate the growth of renewable energy markets in the western United States.

4.6.3.3.9 Executive Orders Related to GHG Emissions

California's Executive Branch has taken several actions to reduce GHGs through the use of Executive Orders. Although not regulatory, they set the tone for the state and guide the actions of state agencies.

Executive Order B-55-18 and SB 100

Executive Order B-55-18 and SB 100. SB 100 and Executive Order B-55-18 were signed by Governor Brown on September 10, 2018. Under the existing RPS, 25% of retail sales are required to be from renewable sources by December 31, 2016, 33% by December 31, 2020, 40% by December 31, 2024, 45% by December 31, 2027, and 50% by December 31, 2030. SB 100 raises California's RPS requirement to 50% renewable resources target by December 31, 2026, and to achieve a 60% target by December 31, 2030. SB 100 also requires that retail sellers and local publicly owned electric utilities procure a minimum quantity of electricity products from eligible renewable energy resources so that the total kilowatt hours (kWh) of those products sold to their retail end-use customers achieve 44% of retail sales by December 31, 2024, 52% by December 31, 2027, and 60% by December 31, 2030. In addition to targets under AB 32 and SB 32, Executive Order B-55-18 establishes a carbon neutrality goal for the state of California by 2045; and sets a goal to maintain net negative emissions thereafter. The Executive Order directs the California Natural Resources Agency (CNRA), California Environmental Protection Agency (CalEPA), the Department of Food and Agriculture (CDFA), and CARB to include sequestration targets in the Natural and Working Lands Climate Change Implementation Plan consistent with the carbon neutrality goal.

Executive Order S-3-05

Former California Governor Arnold Schwarzenegger announced on June 1, 2005, through Executive Order S-3-05, the following reduction targets for GHG emissions:

- By 2010, reduce GHG emissions to 2000 levels.
- By 2020, reduce GHG emissions to 1990 levels.
- By 2050, reduce GHG emissions to 80% below 1990 levels.

The 2050 reduction goal represents what some scientists believe is necessary to reach levels that will stabilize the climate. The 2020 goal was established to be a mid-term target. Because this is an executive order, the goals are not legally enforceable for local governments or the private sector.

Executive Order S-01-07 (LCFS)

The Governor signed Executive Order S-01-07 on January 18, 2007. The order mandates that a statewide goal shall be established to reduce the carbon intensity of California's transportation fuels by at least 10% by 2020. The CARB adopted the LCFS on April 23, 2009.

The LCFS was challenged in the U.S. District Court in Fresno in 2011. The court's ruling issued on December 29, 2011, included a preliminary injunction against CARB's implementation of the rule. The Ninth Circuit Court of Appeals stayed the injunction on April 23, 2012, pending final ruling on appeal, allowing CARB to continue to implement and enforce the regulation. The Ninth Circuit Court's decision, filed September 18, 2013, vacated the preliminary injunction. In essence, the court held that LCFS adopted by CARB were not in conflict with federal law. On August 8, 2013, the Fifth District Court of Appeal (California) ruled CARB failed to comply with CEQA and the Administrative Procedure Act (APA) when adopting regulations for LCFS. In a partially published opinion, the Court of Appeal reversed the trial court's judgment and directed issuance of a writ of mandate setting aside Resolution 09-31 and two executive orders of CARB approving LCFS regulations promulgated to reduce GHG emissions. However, the court tailored its remedy to protect the public interest by allowing the LCFS regulations to remain operative while CARB complies with the procedural requirements it failed to satisfy.

To address the Court ruling, CARB was required to bring a new LCFS regulation to the Board for consideration in February 2015. The proposed LCFS regulation was required to contain revisions to the 2010 LCFS as well as new provisions designed to foster investments in the production of the low-carbon intensity fuels, offer additional flexibility to regulated parties, update critical technical information, simplify and streamline program operations, and enhance enforcement. On November 16, 2015 the Office of Administrative Law (OAL) approved the Final Rulemaking Package. The new LCFS regulation became effective on January 1, 2016.

In 2018, the CARB approved amendments to the regulation, which included strengthening the carbon intensity benchmarks through 2030 in compliance with the SB 32 GHG emissions reduction target for 2030. The amendments included crediting opportunities to promote zero emission vehicle adoption, alternative jet fuel, carbon capture and sequestration, and advanced technologies to achieve deep decarbonization in the transportation sector.

Executive Order S-13-08

Executive Order S-13-08 states that "climate change in California during the next century is expected to shift precipitation patterns, accelerate sea level rise and increase temperatures, thereby posing a serious threat to California's economy, to the health and welfare of its population and to its natural resources." Pursuant to the requirements in the Order, the 2009 California Climate Adaptation Strategy (CNRA 2009) was adopted, which is the "…first statewide, multi-sector, region-specific, and information-based climate change adaptation strategy in the United States." Objectives include analyzing risks of climate change in California, identifying and exploring strategies to adapt to climate change, and specifying a direction for future research.

Executive Order B-30-15

On April 29, 2015, Governor Edmund G. Brown Jr. issued an executive order to establish a California GHG reduction target of 40% below 1990 levels by 2030. The Governor's executive order aligns California's GHG reduction targets with those of leading international governments ahead of the U.N. Climate Change Conference in Paris late 2015. The Order sets a new interim statewide GHG emission reduction target to reduce GHG emissions to 40% below 1990 levels by 2030 in order to ensure California meets its target of reducing GHG emissions to 80% below 1990 levels by 2050 and directs CARB to update the Climate Change Scoping Plan to express the 2030 target in terms of $MMTCO_2e$. The Order also requires the state's climate adaptation plan to be updated every three years, and for the State to continue its climate change research program, among other provisions. As with Executive Order S-3-05, this Order is not legally enforceable for local governments and the private sector. Legislation that would update AB 32 to make post 2020 targets and requirements a mandate is in process in the State Legislature.

4.6.3.3.10 California Regulations and Building Codes

California has a long history of adopting regulations to improve energy efficiency in new and remodeled buildings. These regulations have kept California's energy consumption relatively flat even with rapid population growth.

Title 20 CCR

CCR, Title 20: Division 2, Chapter 4, Article 4, Sections 1601-1608: Appliance Efficiency Regulations regulates the sale of appliances in California. The Appliance Efficiency Regulations include standards for both federally regulated appliances and non-federally regulated appliances. 23 categories of appliances are included in the scope of these regulations. The standards within these regulations apply to appliances that are sold or offered for sale in California, except those sold wholesale in California for final retail sale outside the state and those designed and sold exclusively for use in recreational vehicles or other mobile equipment (CEC 2012).

Title 24 CCR

CCR Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings, was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases GHG emissions. The 2019 version of Title 24 was adopted by the CEC and became effective on January 1, 2020.

The CEC indicates that the 2019 Title 24 standards will require solar photovoltaic systems for new homes, establish requirements for newly constructed healthcare facilities, encourage demand responsive technologies for residential buildings, update indoor and outdoor lighting for nonresidential buildings. The CEC anticipates that single-family homes built with the 2019 standards will use approximately 7% less energy compared to the residential homes built under the 2016 standards. Additionally, after implementation of solar photovoltaic systems, homes built under the 2019 standards will about 53% less energy than homes built under the 2016 standards. Nonresidential buildings will use approximately 30% less energy due to lighting upgrades.

CCR, Title 24, Part 11: California Green Building Standards Code (CALGreen) is a comprehensive and uniform regulatory code for all residential, commercial, and school buildings that went in effect on January 1, 2011, and is administered by the California Building Standards Commission (CBSC). CALGreen is updated on a regular basis, with the most recent approved update consisting of the 2019 California Green Building Code Standards that have become effective on January 1, 2020. Local jurisdictions are permitted to adopt more stringent requirements, as state law provides methods for local enhancements. CALGreen recognizes that many jurisdictions have developed existing construction and demolition ordinances and defers to them as the ruling guidance provided, they establish a minimum 65% diversion requirement. The code also provides exemptions for areas not served by construction and demolition recycling infrastructure. The State Building Code provides the minimum standard that buildings must meet in order to be certified for occupancy, which is generally enforced by the local building official. 2019 CALGreen standards are applicable to the Project and require:

- Short-term bicycle parking. If the new project or an additional alteration is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 200 feet of the visitors' entrance, readily visible to passers-by, for 5% of new visitor motorized vehicle parking spaces being added, with a minimum of one two-bike capacity rack (5.106.4.1.1).
- Long-term bicycle parking. For new buildings with tenant spaces that have 10 or more tenant-occupants, provide secure bicycle parking for 5% of the tenant-occupant vehicular parking spaces with a minimum of one bicycle parking facility (5.106.4.1.2).
- Designated parking. In new projects or additions to alterations that add 10 or more vehicular parking spaces, provide designated parking for any combination of low-emitting, fuel-efficient and carpool/van pool vehicles as shown in Table 5.106.5.2 (5.106.5.2).

- Construction waste management. Recycle and/or salvage for reuse a minimum of 65% of the nonhazardous construction and demolition waste in accordance with Section 5.408.1.1. 5.405.1.2, or 5.408.1.3; or meet a local construction and demolition waste management ordinance, whichever is more stringent (5.408.1).
- Excavated soil and land clearing debris. 100% of trees, stumps, rocks and associated vegetation and soils resulting primarily from land clearing shall be reused or recycled. For a phase project, such material may be stockpiled on site until the storage site is developed (5.408.3).
- Recycling by Occupants. Provide readily accessible areas that serve the entire building and are identified for the depositing, storage and collection of non-hazardous materials for recycling, including (at a minimum) paper, corrugated cardboard, glass, plastics, organic waste, and metals or meet a lawfully enacted local recycling ordinance, if more restrictive (5.410.1).
- Water conserving plumbing fixtures and fittings. Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the following:
  - Water Closets. The effective flush volume of all water closets shall not exceed 1.28 gallons per flush (5.303.3.1)
  - Urinals. The effective flush volume of wall-mounted urinals shall not exceed 0.125 gallons per flush (5.303.3.2.1). The effective flush volume of floor-mounted or other urinals shall not exceed 0.5 gallons per flush (5.303.3.2.2).
  - Showerheads. Single showerheads shall have a minimum flow rate of not more than 1.8 gallons per minute and 80 psi (5.303.3.3.1). When a shower is served by more than one showerhead, the combine flow rate of all showerheads and/or other shower outlets controlled by a single valve shall not exceed 1.8 gallons per minute at 80 psi (5.303.3.3.2).
  - Faucets and fountains. Nonresidential lavatory faucets shall have a maximum flow rate of note more than 0.5 gallons per minute at 60 psi (5.303.3.4.1). Kitchen faucets shall have a maximum flow rate of not more than 1.8 gallons per minute of 60 psi (5.303.3.4.2). Wash fountains shall have a maximum flow rate of not more than 1.8 gallons per minute (5.303.3.4.3). Metering faucets shall not deliver more than 0.20 gallons per cycle (5.303.3.4.4). Metering faucets for wash fountains shall have a maximum flow rate not more than 0.20 gallons per cycle (5.303.3.4.5).
- Outdoor portable water use in landscaped areas. Nonresidential developments shall comply with a local water efficient landscape ordinance or the current California Department of Water Resources' Model Water Efficient (MWELO), whichever is more stringent (5.304.1).
- Water meters. Separate submeters or metering devices shall be installed for new buildings or additions in excess of 50,000 sf or for excess consumption where any tenant within a new building or within an addition that is project to consume more than 1,000 gal/day (5.303.1.1 and 5.303.1.2).
- Outdoor water use in rehabilitated landscape projects equal or greater than 2,500 sf. Rehabilitated landscape projects with an aggregate landscape area equal to or greater than 2,500 sf requiring a building or landscape permit (5.304.3).
- Commissioning. For new buildings 10,000 sf and over, building commissioning shall be included in the design and construction processes of the building project to verify that the building systems and components meet the owner's or owner representative's project requirements (5.410.2).

MWELO

The MWELO was required by AB 1881, the Water Conservation Act. The bill required local agencies to adopt a local landscape ordinance at least as effective in conserving water as the Model Ordinance by January 1, 2010. Governor Brown's Drought Executive Order of April 1, 2015 (Executive Order B-29-15) directed Department of Water Resources (DWR) to update the Ordinance through expedited regulation. The California Water Commission approved the revised Ordinance on July 15, 2015 effective December 15, 2015. New development projects that include landscape areas of 500 sf or more are subject to the Ordinance. The update requires:

- More efficient irrigation systems;
- Incentives for graywater usage;
- Improvements in on-site stormwater capture;
- Limiting the portion of landscapes that can be planted with high water use plants; and
- Reporting requirements for local agencies.

CARB Refrigerant Management Program

CARB adopted a regulation in 2009 to reduce refrigerant GHG emissions from stationary sources through refrigerant leak detection and monitoring, leak repair, system retirement and retrofitting, reporting and recordkeeping, and proper refrigerant cylinder use, sale, and disposal. The regulation is set forth in sections 95380 to 95398 of Title 17, CCR. The rules implementing the regulation establish a limit on statewide GHG emissions from stationary facilities with refrigeration systems with more than 50 lbs of a high GWP refrigerant. The refrigerant management program is designed to (1) reduce emissions of high-GWP GHG refrigerants from leaky stationary, non-residential refrigeration equipment; (2) reduce emissions from the installation and servicing of refrigeration and air-conditioning appliances using high-GWP refrigerants; and (3) verify GHG emission reductions.

Tractor-Trailer GHG Regulation

The tractors and trailers subject to this regulation must either use EPA SmartWay certified tractors and trailers or retrofit their existing fleet with SmartWay verified technologies. The regulation applies primarily to owners of 53-foot or longer box-type trailers, including both dry-van and refrigerated-van trailers, and owners of the HD tractors that pull them on California highways. These owners are responsible for replacing or retrofitting their affected vehicles with compliant aerodynamic technologies and low rolling resistance tires. Sleeper cab tractors model year 2011 and later must be SmartWay certified. All other tractors must use SmartWay verified low rolling resistance tires. There are also requirements for trailers to have low rolling resistance tires and aerodynamic devices.

Phase I and 2 Heavy-Duty Vehicle GHG Standards

CARB has adopted a new regulation for GHG emissions from HDTs and engines sold in California. It establishes GHG emission limits on truck and engine manufacturers and harmonizes with the EPA rule for new trucks and engines nationally. Existing HD vehicle regulations in California include engine criteria emission standards, tractor-trailer GHG requirements to implement SmartWay strategies (i.e., the Heavy-Duty Tractor-Trailer Greenhouse Gas Regulation), and in-use fleet retrofit requirements such as the Truck and Bus Regulation. In September 2011, the EPA adopted their new rule for HDTs and engines. The EPA rule has compliance requirements for new compression and spark ignition engines, as well as trucks from Class 2b through Class 8. Compliance requirements begin with model year (MY) 2014 with stringency levels increasing through MY 2018. The rule organizes truck compliance into three groupings, which include a) HD pickups and vans; b) vocational vehicles; and c) combination tractors. The EPA rule does not regulate trailers.

CARB staff has worked jointly with the EPA and the NHTSA on the next phase of federal GHG emission standards for medium-duty trucks (MDT) and HDT vehicles, called federal Phase 2. The federal Phase 2 standards were built on the improvements in engine and vehicle efficiency required by the Phase 1 emission standards and represent a significant opportunity to achieve further GHG reductions for 2018 and later model year HDT vehicles, including trailers. But as discussed above, the EPA and NHTSA have proposed to roll back GHG and fuel economy standards for cars and light-duty trucks, which suggests a similar rollback of Phase 2 standards for MDT and HDT vehicles may be pursued.

SB 97 and the CEQA Guidelines Update
Passed in August 2007, SB 97 added Section 21083.05 to the Public Resources Code. The code states "(a) On or before July 1, 2009, the OPR shall prepare, develop, and transmit to the Resources Agency guidelines for the mitigation of GHG emissions or the effects of GHG emissions as required by this division, including, but not limited to, effects associated with transportation or energy consumption. (b) On or before January 1, 2010, the Resources Agency shall certify and adopt guidelines prepared and developed by the OPR pursuant to subdivision (a)." Section 21097 was also added to the Public Resources Code. It provided CEQA protection until January 1, 2010 for transportation projects funded by the Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act of 2006 or projects funded by the Disaster Preparedness and Flood Prevention Bond Act of 2006, in stating that the failure to analyze adequately the effects of GHGs would not violate CEQA.

On December 28, 2018, the Natural Resources Agency announced the OAL approved the amendments to the CEQA Guidelines for implementing the CEQA. The CEQA Amendments provide guidance to public agencies regarding the analysis and mitigation of the effects of GHG emissions in CEQA documents. The CEQA Amendments fit within the existing CEQA framework by amending existing CEQA Guidelines to reference climate change.

Section 15064.3 was added the CEQA Guidelines and states that in determining the significance of a project's GHG emissions, the lead agency should focus its analysis on the reasonably foreseeable incremental contribution of the project's emissions to the effects of climate change. A project's incremental contribution may be cumulatively considerable even if it appears relatively small compared to statewide, national or global emissions. The agency's analysis should consider a timeframe that is appropriate for the project. The agency's analysis also must reasonably reflect evolving scientific knowledge and state regulatory schemes. Additionally, a lead agency may use a model or methodology to estimate GHG emissions resulting from a project. The lead agency has discretion to select the model or methodology it considers most appropriate to enable decision makers to intelligently take into account the project's incremental contribution to climate change. The lead agency must support its selection of a model or methodology with substantial evidence. The lead agency should explain the limitations of the particular model or methodology selected for use.

4.6.3.4 Regional

The project is within the South Coast Air Basin (SCAB), which is under the jurisdiction of the SCAQMD.

4.6.3.4.1 SCAQMD
SCAQMD is the agency responsible for air quality planning and regulation in the SCAB. The SCAQMD addresses the impacts to climate change of projects subject to SCAQMD permit as a

lead agency if they are the only agency having discretionary approval for the project and acts as a responsible agency when a land use agency must also approve discretionary permits for the project. The SCAQMD acts as an expert commenting agency for impacts to air quality. This expertise carries over to GHG emissions, so the agency helps local land use agencies through the development of models and emission thresholds that can be used to address GHG emissions.

In 2008, SCAQMD formed a Working Group to identify GHG emissions thresholds for land use projects that could be used by local lead agencies in the SCAB. The Working Group developed several different options that are contained in the SCAQMD Draft Guidance Document – Interim CEQA GHG Significance Threshold, that could be applied by lead agencies. The working group has not provided additional guidance since release of the interim guidance in 2008. The SCAQMD Board has not approved the thresholds; however, the Guidance Document provides substantial evidence supporting the approaches to significance of GHG emissions that can be considered by the lead agency in adopting its own threshold. The current interim thresholds consist of the following tiered approach:

- Tier 1 consists of evaluating whether or not the project qualifies for any applicable exemption under CEQA.
- Tier 2 consists of determining whether the project is consistent with a GHG reduction plan. If a project is consistent with a qualifying local GHG reduction plan, it does not have significant GHG emissions.
- Tier 3 consists of screening values, which the lead agency can choose, but must be consistent with all projects within its jurisdiction. A project's construction emissions are averaged over 30 years and are added to the project's operational emissions. If a project's emissions are below one of the following screening thresholds, then the project is less than significant:
    - Residential and Commercial land use: 3,000 $MTCO_2e$/yr
    - Industrial land use: 10,000 $MTCO_2e$/yr
    - Based on land use type: residential: 3,500 $MTCO_2e$/yr; commercial: 1,400 $MTCO_2e$/yr; or mixed use: 3,000 $MTCO_2e$/yr
- Tier 4 has the following options:
    - Option 1: Reduce Business-as-Usual (BAU) emissions by a certain percentage; this percentage is currently undefined.
    - Option 2: Early implementation of applicable AB 32 Scoping Plan measures
    - Option 3: 2020 target for service populations (SP), which includes residents and employees: 4.8 $MTCO_2e$ per SP per year for projects and 6.6 $MTCO_2e$ per SP per year for plans;
    - Option 3, 2035 target: 3.0 $MTCO_2e$ per SP per year for projects and 4.1 $MTCO_2e$ per SP per year for plans
- Tier 5 involves mitigation offsets to achieve target significance threshold.

The SCAQMD's interim thresholds used the Executive Order S-3-05-year 2050 goal as the basis for the Tier 3 screening level. Achieving the Executive Order's objective would contribute to worldwide efforts to cap CO_2 concentrations at 450 ppm, thus stabilizing global climate.

SCAQMD only has authority over GHG emissions from development projects that include air quality permits. At this time, it is unknown if the project would include stationary sources of emissions subject to SCAQMD permits. Notwithstanding, if the Project requires a stationary permit, it would be subject to the applicable SCAQMD regulations.

SCAQMD Regulation XXVII, adopted in 2009 includes the following rules:

- Rule 2700 defines terms and post global warming potentials.
- Rule 2701, SoCal Climate Solutions Exchange, establishes a voluntary program to encourage, quantify, and certify voluntary, high quality certified GHG emission reductions in the SCAQMD.
- Rule 2702, GHG Reduction Program created a program to produce GHG emission reductions within the SCAQMD. The SCAQMD will fund projects through contracts in response to requests for proposals or purchase reductions from other parties.

4.6.4 Thresholds of Significance

The Project has been evaluated to determine if it will result in a significant GHG impact. The significance of these potential impacts is described in the following section.

The criteria used to determine the significance of potential Project-related GHG impacts are taken from Appendix G of the *State CEQA Guidelines*. Based on these thresholds, a project would result in a significant impact related to GHG if it would:

a) Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs?

4.6.4.1 CalEEMod

On October 17, 2017, the SCAQMD, in conjunction with the California Air Pollution Control Officers Association (CAPCOA) and other California air districts, released the latest version of the California Emissions Estimator Model (CalEEMod) Version 2016.3.2. The purpose of this model is to calculate construction-source and operational-source criteria pollutants and GHG emissions from direct and indirect sources; and quantify applicable air quality and GHG reductions achieved from mitigation measures. Accordingly, the latest version of CalEEMod has been used for this Project to determine GHG emissions. Output from the model runs for construction activity are provided in Appendices 3.1 through 3.4 of the GHGA.

4.6.4.2 Construction Life-Cycle Analysis not Required

A full life-cycle analysis (LCA) for construction and operational activity is not included in this analysis due to the lack of consensus guidance on LCA methodology at this time. Life-cycle analysis (i.e., assessing economy-wide GHG emissions from the processes in manufacturing and transporting all raw materials used in the project development, infrastructure and on-going operations) depends on emission factors or econometric factors that are not well established for all processes. At this time, an LCA would be extremely speculative and thus has not been prepared.

Additionally, the SCAQMD recommends analyzing direct and indirect project GHG emissions generated within California and not life-cycle emissions because the life-cycle effects from a project could occur outside of California, might not be very well understood or documented, and would be challenging to mitigate. Additionally, the science to calculate life cycle emissions is not yet established or well defined; therefore, SCAQMD has not recommended, and is not requiring, life-cycle emissions analysis.

4.6.5 Environmental Consequences

a) Would the Project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?

4.6.5(a).1 Construction and Operational Emissions

As previously stated, the Project consists of the construction and operation of the following facilities:

Project Category 1: Well Development and Monitoring Devices
This Project Category includes the development of ASR, injection, pumping, groundwater level monitoring, and groundwater quality wells, associated well housing, as well as monitoring devices such as flow meters and extensometers. The proposed wells and monitoring devices will be installed throughout the Chino Basin.

Well development includes: 60 ASR wells, 10 wells relocated, 8 new wells to expand desalter capacity, modification of up to 5 wells, destruction and replacement of 5 wells for a total of 78 pumping wells. This category also includes the development of 100 monitoring wells, for a total of 178 wells, which serve the varying purposes listed above and outlined below. The monitoring devices proposed as part of the OBMPU include 300 flow meters and 3 extensometers.

Project Category 2: Conveyance Facilities and Ancillary Facilities
This category includes the construction of 550,000 LF of new pipelines, booster pump stations, reservoirs and minor appurtenances whose number, locations and capacities are presently unknown. The proposed conveyance facilities and ancillary facilities would be implemented throughout the entire Chino Basin.

Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands
This Project Category includes the construction of 310 acres of new storage basins—several locations for which are within existing facilities, improvements to existing storage basin(s), 200 acres of flood MAR facilities, new MS4-compliance facilities, and expansion of the maximum storage space (safe storage capacity) to be used within the Chino Basin from 600,000 acre-feet (af) (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af within this range of storage. The specific locations of the storage basins are described in the Project Description above; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

Project Category 4: Desalters and Water Treatment Facilities
The projects proposed under this category are: upgrades at Inland Empire Utilities Agency's (IEUA) existing Treatment Plants (discussed in IEUA's 2017 FMP PEIR), a new advanced water treatment plant, improvements to the WFA Agua de Lejos Treatment Plant, upgrades to the Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities.

Because few details are known at this time regarding construction of specific projects, it is assumed that construction any Project facilities may occur simultaneously. As a conservative measure, and in order to identify the maximum daily emissions, this AQIA assumes that the Project would construct the following features simultaneously:

Project Category 1

- 20 monitoring wells
- 10 production wells
- 65,000 linear feet (LF) of associated conveyance pipeline

Project Category 2

- 200,000 LF of conveyance pipeline

Project Category 3

- One new storage reservoir on a 100-acre site
- 60,000 LF of associated conveyance pipeline

Project Category 4

- One new water treatment facility on a 10-acre site
- One new regional water treatment facility on a 10-acre site
- 60,000 LF of associated conveyance pipeline

4.6.5(a).1.1 Construction Activities

Construction activities associated with the Project would result in emissions of CO_2 and CH_4 from construction activities. The report *Air Quality Impact Analysis Report* (AQIA) (Urban Crossroads, Inc.) contains detailed information regarding construction activity, which can also be found under **4.2.5(b).1.1**, **4.2.5(b).1.2**, and **4.2.5(b).1.3** in Subchapter 4.2, Air Quality.

4.6.5(a).1.2 Operational Activities

In terms of operational GHG emissions, the proposed Project involves the construction of wells, conveyance facilities and ancillary facilities, storage basins, recharge facilities, storage bands, desalters and water treatment facilities, and associated improvements. The proposed Project does not include any substantive new stationary or mobile sources of emissions, and therefore, by its very nature, will not generate quantifiable GHG emissions from Project operations. However, given that certain components of the OBMPU may require substantial electricity to operate, mitigation is required to ensure that subsequent CEQA documentation is prepared to address operational energy-related emissions. The Project does not propose a trip-generating land use or facilities that would generate any substantive amount of on-going GHG emissions. While it is anticipated that the Project would require intermittent maintenance to be conducted, such maintenance would be minimal requiring a negligible amount of traffic trips on an annual basis. Therefore, there is no significant operational impact.

4.6.5(a).1.3 Emissions Summary

As shown in Table 4.6-4, the Project will result in approximately 18,986.93 $MTCO_2e$/yr from construction activities.

Table 4.6-4
PROJECT GHG EMISSIONS

Construction-related Emission Source	Emissions (MT/yr)			
	CO_2	CH_4	N_2O	Total CO_2e
Project Category 1	1,151.81	0.14	0.00	1,155.25
Project Category 2	5,704.02	1.69	0.00	5,746.19
Project Category 3	5,533.65	1.72	0.00	5,576.61
Project Category 4	6,461.62	1.89	0.00	6,508.88
Total CO_2e (All Sources)	**18,986.93**			

Source: Refer to Appendices 3.1 through 3.4 within the GHGA for detailed CalEEMod outputs.

The proposed project would generate emissions beyond the SCAQMD 3,000 $MTCO_2e$/yr and 10,000 $MTCO_2e$/yr thresholds, and as such, will have a significant and unavoidable adverse impact under Greenhouse Gas.

Though the proposed project will be required to comply with regulations imposed by the State of California and the South Coast Air Quality Management District (SCAQMD) aimed at the reduction of air pollutant emissions. Those that are directly and indirectly applicable to the Project and that would assist in the reduction of GHG emissions include:

- Global Warming Solutions Act of 2006 (Assembly Bill (AB) 32).
- Regional GHG Emissions Reduction Targets/Sustainable Communities Strategies (Senate Bill (SB) 375).
- Pavley Fuel Efficiency Standards (AB 1493). Establishes fuel efficiency ratings for new vehicles.
- California Building Code (Title 24 California Code of Regulations (CCR)). Establishes energy efficiency requirements for new construction.
- Appliance Energy Efficiency Standards (Title 20 CCR). Establishes energy efficiency requirements for appliances.
- Low Carbon Fuel Standard (LCFS). Requires carbon content of fuel sold in California to be 10 percent (%) less by 2020.
- California Water Conservation in Landscaping Act of 2006 (AB 1881). Requires local agencies to adopt the Department of Water Resources updated Water Efficient Landscape Ordinance or equivalent by January 1, 2010 to ensure efficient landscapes in new development and reduced water waste in existing landscapes.
- Statewide Retail Provider Emissions Performance Standards (SB 1368). Requires energy generators to achieve performance standards for GHG emissions.
- Renewable Portfolio Standards (SB 1078 – also referred to as RPS). Requires electric corporations to increase the amount of energy obtained from eligible renewable energy resources to 20 % by 2010 and 33% by 2020.
- California Global Warming Solutions Act of 2006 (SB 32). Requires the state to reduce statewide GHG emissions to 40% below 1990 levels by 2030, a reduction target that was first introduced in Executive Order B-30-15.

Promulgated regulations that will affect the Project's emissions are accounted for in the Project's GHG calculations provided in this report. In particular, AB 1493, LCFS, and RPS, and therefore are accounted for in the Project's emission calculations.

b) Would the Project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs?

GHG Impact #1: The Project would generate direct or indirect GHG emission that would result in a significant impact on the environment.

The Chino Basin Watermaster and IEUA have not adopted their own numeric threshold of significance for determining impacts with respect to GHG emissions. Screening thresholds of 3,000 $MTCO_2e$/yr or 10,000 $MTCO_2e$/yr to determine if additional analysis is required is an acceptable approach for small projects. This approach is a widely accepted screening threshold used by numerous cities and counties in the SCAB and is based on the SCAQMD staff's proposed GHG screening threshold for stationary source emissions for non-industrial projects, as described in the SCAQMD's *Interim CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans* (SCAQMD Interim GHG Threshold). The SCAQMD Interim GHG Threshold identifies a screening threshold to determine whether additional analysis is required.

The Project will result in approximately 18,986.93 $MTCO_2e$/yr from construction activities. As such, the Project would exceed the SCAQMD's recommended numeric thresholds of 3,000 $MTCO_2e$ 10,000 $MTCO_2e$/yr if they were applied. Thus, the Project has the potential to result in a cumulatively considerable impact with respect to GHG emissions.

GHG Impact #2: The Project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHG.

As discussed above, the Project involves construction activity and does not propose a trip-generating land use or facilities that would generate any substantive amount of on-going GHG emissions. However, as presented in Table 4.6-4, the project's short-term GHG emissions are above the 3,000 $MTCO_2e$/yr and 10,000 $MTCO_2e$/yr screening thresholds. As concluded in Impact Statement GHG-1 the proposed project would have the potential to generate a significant amount of GHGs emissions. As such, proposed Project may otherwise conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. Impacts are considered potentially significant in this regard.

4.3.6 <u>Avoidance, Minimization and Mitigation Measures</u>

Mitigation measures designed to reduce GHG emissions from construction and operation of OBMPU are identified in Subchapter 4.2, Air Quality, of this DEIR (MMs **AQ-1** through **AQ-2**). Additionally, Mitigation Measure **EN-2** is also required as it addresses operational energy demands and potential GHG emissions. No additional mitigation measures are recommended or required.

4.3.7 <u>Cumulative Impacts</u>

In 2016, California greenhouse gas emissions totaled 429.4 million metric tons CO_2e[4]. The proposed project will generate approximately 18,986.93 metric tons CO_2e per year, or about 0.0044% of this amount. However, the proposed Project may contribute cumulatively to global climate change through an incremental contribution of greenhouse gases. Even with implementation of the recommended Air Quality mitigation measures identified within Subchapter 4.2, Air Quality, of this DSEIR, the entire program, under the assumptions outlined under **4.2.5(b).1.1**, **4.2.5(b).1.2**, and **4.2.5(b).1.3** in Subchapter 4.2, Air Quality exceeds the SCAQMD screening thresholds of 3,000 $MTCO_2e$ and 10,000 $MTCO_2e$/yr. Project GHG impacts are

[4] https://www.arb.ca.gov/cc/inventory/data/data.htm

mitigated to the greatest extent feasible, but construction of the program will still contribute to global climate change through a cumulatively considerable contribution of greenhouse gases. As such, the proposed project would result in a cumulatively considerable/significant adverse greenhouse gas impact.

4.3.8 Unavoidable Significant Adverse Impacts

The Project-specific evaluation of emissions presented in the preceding analysis demonstrates that after implementation of the recommended mitigation measures, the OBMPU exceeds the SCAQMD screening threshold of 3,000 $MTCO_2e$. Therefore, the project's GHG emissions are considered to be an unavoidable adverse significant impact. No Project-specific feasible mitigation measures have been identified that would reduce these emissions to levels that are less than significant. Thus, exceedances of applicable SCAQMD regional thresholds are considered significant and unavoidable, and the construction of the proposed project would create a significant cumulative impact to global climate change.

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4.7 HYDROLOGY AND WATER QUALITY

4.7.1 Introduction

This Subchapter will evaluate the environmental impacts to the issue areas of Hydrology (watershed, drainage and flood hazards) and Water Quality from implementation of the proposed Optimum Basin Management Program Update (OBMPU). This section will evaluate the available information about the background hydrology and water quality and forecast the type of impacts that may occur, including identification of mitigation measures that can ensure potential impacts from constructing and operating the various components of the OBMPU can be reduced to the minimum level achievable consistent with meeting project objectives.

The Watermaster envisions the facilities described in this Section as a key element in the long-term sustainable management of the region's groundwater resources. The OBMPU is anticipated to be implemented over a planning horizon of about 30 years. The implementation of the facilities proposed as part of the OBMPU consists of construction and operation of the various facilities supporting the 9 Program Elements that make up the OBMPU. These potential facilities are separated into four project categories: (1) Project Category 1: Well Development and Monitoring Devices; (2) Project Category 2: Conveyance Facilities and Ancillary Facilities; (3) Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands; and, (4) Desalters and Water Treatment Facilities.

The goals and their intent for the OBMPU include:

> ***Goal No. 1 - Enhance Basin Water Supplies.*** The intent of this goal is to increase the water supplies available for Chino Basin Parties and improve water supply reliability. This goal applies to Chino Basin groundwater and all other sources of water available for beneficial use.
>
> ***Goal No.2 - Protect and Enhance Water Quality.*** The intent of this goal is to ensure the protection of the long-term beneficial uses of Chino Basin groundwater.
>
> ***Goal No.3 - Enhance Management of the Basin.*** The intent of this goal is to encourage sustainable management of the Chino Basin to avoid Material Physical Injury, promote local control, and improve water-supply reliability for the benefit of all Chino Basin Parties.
>
> ***Goal No. 4 - Equitably Finance the OBMP.*** The intent of this goal is to identify and use efficient and equitable methods to fund OBMP implementation.

Three comment(s) specific to this topic were received in response to the Notice of Preparation. No comments were received at the scoping meeting held for the proposed Project.

Comment Letter #2 from Orange County Water District (OCWD) (dated 3/6/20) states:

- OCWD has statutory authority over and extensive activities within Prado Basin.
- The distribution of riparian vegetation and wetlands in the Prado Basin relies on rising groundwater or groundwater seepage as a Groundwater Dependent Ecosystem.
- The OBMPU EIR should evaluate potential effects that the proposed project might have on the Groundwater Dependent Ecosystem in Prado Basin.
- The OBMPU EIR should assess how the proposed projects would change or effect surface flow rates in Chino Creek, Mill Creek, and the Santa Ana River.

- The OBMPU EIR should assess how changes in surface water flow rates in these water bodies affect the levels and availability of shallow groundwater in and around Prado Basin.
- The OBMPU EIR should assess the effects that OBMPU related changes in groundwater levels will have on sensitive riparian vegetation and riparian habitats.
- The OBMPU EIR should assess how changes in groundwater pumping, groundwater storage levels, or groundwater overdraft affect the levels and availability of shallow groundwater in and around Prado Basin, and the effects these changes will have on sensitive riparian vegetation and riparian habitats.
- The OBMPU EIR should evaluate potential impacts of increased fire risk, riparian habitat loss, and riparian habitat conversion to non-native plant species that might occur to the proposed OBMPU Projects.
- The OBMPU EIR should provide a quantitative analysis regarding how OBMPU projects would affect Santa Ana River flows reaching Prado Basin.
- The OBMPU EIR should provide a quantitative analysis regarding how OBMPU projects would cumulatively impact Prado Basin habitat and groundwater levels in relation to those projects identified in the habitat conservation plan.

Comment Letter #4 from the Department of Water Resources, Division of Safety of Dams (DSOD) (dated 3/3/20) states:

- The DSOD acknowledges the OBMPU includes possible future new surface water basins and improvements to existing basins
- The DSOD seeks additional information regarding whether these projects may be subject to State jurisdiction for dam safety. DSOD requests submittal of preliminary plans for each project to allow them to conduct reviews.
- DSOD outlines the process for initiating and processing applications with their organization.

Comment #5 e-mail from Katie Gienger, Water Resources Manager for Ontario Municipal Utilities (dated 3/9/20) states:

- The Comment identifies the process for future review of projects that may result in potential changes to surface flows in the Santa Ana River (quality or quantity), particularly in relation to recycled water discharges to the River and means to mitigate potential impacts from such changes. This Comment states that the OBMPU should include discussion of the potential adverse impact to the Santa Ana River from proposed OBMPU future projects.

These issues pertaining to hydrology and water quality will be discussed below under the following framework:

- Introduction
- Environmental Setting: Chino Basin Hydrology
- Thresholds of Significance
- Regulatory Setting
- Impacts Discussion: Project Impact Analysis, Mitigation Measures and Cumulative Impact Analysis

The following reference documents were used in preparing this section of the DSEIR.

- Chino Basin Watermaster (2006). *Optimum Basin Management Program, Management Zone 1 Interim Monitoring Program, MZ-1 Summary Report*. Prepared by Wildermuth Environmental, Inc. February 2006.
- Chino Basin Watermaster (2007). *Chino Basin Optimum Basin Management Program, Management Zone 1 Subsidence Management Pla*n. October 2007
- Chino Basin Watermaster (2015). *Chino Basin Subsidence Management P*lan. July 23, 2015.
- Chino Basin Watermaster. (2015). *Work Plan, Develop a Subsidence-Management Plan for the Northwest MZ-1 Area*. July 23, 2015.
- WEI (2015). *2014 Annual Report of the Ground-Level Monitoring Committee*. July 2015.
- WEI (2015). *2013 Chino Basin Groundwater Model Update and Recalculation of Safe Yield Pursuant to the Peace Agreeme*nt. October 2015.
- WEI (2018). *Recharge Master Plan Upd*ate. September 2018.
- WEI (2018). *Storage Framework Investigation*. October 2018; revised January 2019.
- WEI. (2019). *Optimum Basin Management Program Chino Basin Maximum Benefit Annual Report 2018*. April 2019.
- WEI (2019). *Optimum Basin Management Program 2018 State of the Basin Report. Prepared for the Chino Basin Watermaster*. June 2019.
- WEI (2020). *Storage Management Plan*. December 2019.

The *2020 Optimum Basin Management Program Update Report* prepared for the Chino Basin Watermaster by WEI is provided as Appendix 6, Volume 2 to this document.

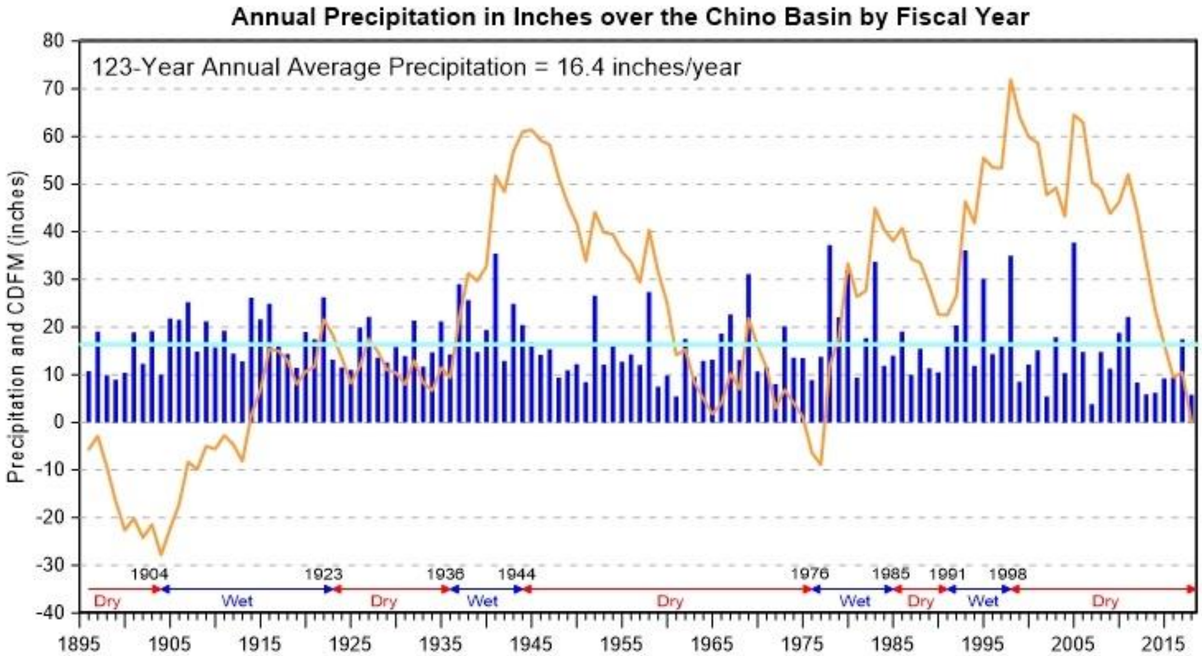
4.7.2 Environmental Setting: Chino Basin Hydrology

The basic hydrology information from the OBMP presented herein is abstracted from the “2018 State of the Basin Report,” (2018 Report) published in June 2019 by Wildermuth Environmental Inc. (WEI) on behalf of the Chino Basin Watermaster.

4.7.2.1 Precipitation

Precipitation is a major source of groundwater recharge for the Chino Basin through the deep infiltration of precipitation, applied water and stormwater recharge in streams and recharge facilities. The chart below shows the long-term annual precipitation time series. These annual precipitation estimates are based on the area average over the Chino Basin, created from gridded monthly precipitation estimates prepared by the PRISM Climate Group and covers the period 1895 through 2017. The annual precipitation estimates cover the fiscal year (FY) (July through June). The chart contains a horizontal line indicating the 123-year average annual precipitation of 16.4 inches, and it contains the cumulative departure from mean (CDFM) precipitation. The CDFM plot is a useful way to characterize the occurrence and magnitude of wet and dry periods: positive sloping segments (trending upward from left to right) indicate wet periods, and negative sloping segments (trending downward from left to right) indicate dry periods. The wet and dry periods are labeled at the bottom of the chart. On average, the ratio of dry years to wet years is about three to two. That is, for every ten years, about six years will experience below average precipitation and four years will experience greater than average precipitation. That said, 1945 through 1976 was a 32-year dry period, punctuated by five years of above average precipitation: a dry-to-wet year ratio of about six to one. The period 1999 through 2018 was a 20-year dry period punctuated with three wet years: a dry-to-wet year ratio of also about six to one. Dry periods tend to be long and very dry and wet periods tend to relatively shorter and very wet (see for example 1936 through 1944, 1977 through 1985 and 1993 through 1998).

EXHIBIT 4.7-1



4.7.2.2 Surface Water

Figure 4.7-1 shows the location of the Chino Basin within the Upper Santa Ana River Watershed and the locations of two key stream-gaging stations in the Chino Basin. Daily discharge data measured at the USGS gaging stations on the Santa Ana River at MWD Xing (USGS Station 11066460) and at the Santa Ana River at Below Prado Dam (USGS Station 11074000) can be used to characterize the discharge of the Santa Ana River as it enters and exits the Chino Basin. The relationship of groundwater management activities in the Chino Basin and the streambed infiltration of Santa Ana River discharge was incorporated into the Chino Basin OBMP. Santa Ana River discharge is composed of storm flow and base flow. Storm flow is discharge that is the direct result of runoff from precipitation. Base flow is the difference between the total measured discharge and storm flow, and it consists of discharge from wastewater treatment plants and rising groundwater. Specifically, the summary of Judgment provides the definition of flows:

> "Storm Flow: That portion of the total flow which originates from precipitation and runoff and which passes a point of measurement (either Riverside Narrows or Prado Dam) without having first percolated to groundwater storage in the zone of saturation, calculated in accordance with procedures referred to in the Judgment."

> "Base Flow: That portion of the total surface flow passing a point of measurement (either Riverside Narrows of Prado Dam) which remains after deduction of storm flow, non-tributary flows, exchange water purchased by OCWD, and certain other flows as determined by the (Santa Ana River) Watermaster."

Figure 4.7-1 shows the locations of the USGS gaging stations and the wastewater treatment plant discharge. Base flow is a significant source of recharge to the Chino Basin. Figure 4.7-1 also shows the annual discharge hydrographs for the Santa Ana River at MWD Xing and at Below Prado Dam. The annual discharge values have been divided into storm and base flows. The base flow time series tends to increase over time, following the conversion of land uses to urban and industrial, until the onset of the great recession in 2008. These land use conversions increased base flow because the improved land uses were sewered and the resulting treated wastewater was discharged to the River. After 2008, the base flow decline was caused by decreased water use due to recession and drought and the IEUA increased use of recycled water for direct and indirect uses, thereby reducing its treated wastewater discharges to the River.

Total Santa Ana River discharge entering the Chino Basin at the MWD Xing (Riverside Narrows) has exceeded 50,000 afy since 1983 except from 1991 to 1995 and from 2009 to 2018. Part of the decrease in base flow at the Riverside Narrows after 2009 is due to a decrease in treated wastewater discharge to the River upstream and falling groundwater levels in the groundwater basins underlying the Santa Ana River upstream, the combined effect of which is a decrease in rising groundwater just upstream of the MWD Xing.

Total Santa Ana River discharge exiting the Chino Basin at Below Prado Dam has exceeded 100,000 afy since 1983 except from 2012 to 2018. The base flow leaving the Chino Basin is about twice the base flow entering the Basin due to the combined treated wastewater treatment plant discharges of the Cities of Corona and Riverside, the IEUA, and the West Riverside County Wastewater Reclamation Authority. The decrease in base flow exiting the Basin after 2005 is due to the decrease in baseflow entering the Basin at the Riverside Narrows, decreases in treated wastewater discharges due to water conservation and recycled water reuse, and increased streambed infiltration caused by increased groundwater production in the southern Chino Basin.

4.7.2.3 Surface Water Quality

The information summarized herein is from the 2018 Chino Basin Maximum Benefit Annual Report prepared by WEI for the Chino Basin Watermaster and IEUA dated April 2019.

Groundwater generally flows from the forebay regions in the north and east toward the Prado Basin, where rising groundwater becomes surface water in the Santa Ana River and its tributaries. Recent and past studies have provided insight into the influence of groundwater pumping in the southern end of the Chino Basin on the Safe Yield of the Basin and the ability of pumping in this part of the Basin to control the discharge of rising groundwater to the Prado Basin and Santa Ana River. Several studies quantify the impacts of the groundwater desalters in the southern Chino Basin on groundwater discharge to the Prado Basin and the Santa Ana River. These studies also indicated that the Chino Basin Desalter program and a slight permanent decrease in basin storage authorized in the Peace II agreement and approved by the Court will (i) capture groundwater flowing south from the forebay regions of the Chino Basin and (ii) reduce the outflow of high-salinity groundwater to the Santa Ana River, thereby providing greater protection of downstream beneficial uses.

The application of the maximum-benefit is contingent upon the implementation of specific projects and programs by Watermaster and the IEUA.[1] These projects and programs, termed the "Chino

[1] In 2002, recognizing that implementing the recycled water reuse program would require large-scale treatment and mitigation of salt loading under the then-current antidegradation objectives for TDS and nitrate defined in the Basin Plan, Watermaster and the IEUA petitioned the Regional Board to establish a

Basin maximum-benefit commitments," include "The achievement and maintenance of the "hydraulic control" of groundwater outflow from the Chino Basin, specifically from Chino-North, to protect Santa Ana River water quality and downstream beneficial uses."

Rising groundwater from the Chino Basin to the Santa Ana River consists of groundwater from Chino-North that flows past the Chino Creek Well Field (CCWF) well field and unpumped groundwater south of and outside the influence of the Chino Desalter well fields. Groundwater discharge from Chino-North to the Prado Basin Management Zone (PBMZ) is either pumped by wells, consumed by riparian vegetation in the PBMZ or becomes rising groundwater and contributes to the Santa Ana River discharge at Prado Dam. Calibration of the 2008 Wasteload Allocation Model (1994-2006) estimated that rising groundwater in the PBMZ had an average Total Dissolved Solid (TDS) concentration of about 850 mgl (WEI, 2009b). This estimate is consistent with a TDS mass-balance characterization of the Santa Ana River (WEI, 2015d) and recent sampling at monitoring wells in the PBMZ.

Rising groundwater from the Chino Basin to the Santa Ana River consists of groundwater from Chino-North that flows past the CCWF well field and unpumped groundwater south of and outside the influence of the Chino Desalter well fields. The Santa Ana River Watermaster's (SARWM) annual analysis of the volume and TDS concentration of the Santa Ana River is used to demonstrate the impact of rising groundwater outflow on the TDS concentration of the Santa Ana River at Prado Dam. The SARWM has compiled annual reports pursuant to the 1969 stipulated judgment[2] that contain estimates of significant discharges to the Santa Ana River, estimates of the storm flow discharge and base flow discharge of the River each water year, as well as the volume-weighted TDS concentration of discharge at the Riverside Narrows and at Prado Dam (see SARWM, 2019). Below is a time-history chart of the annual discharge components in the Santa Ana River at Prado Dam and the associated annual volume-weighted TDS concentration as reported by the SARWM.

The base flow discharge is represented by two bars: (i) the SARWM estimate of base flow discharge at Prado Dam minus the rising groundwater from the Chino Basin component, (ii) and the total rising groundwater discharge from the Chino Basin to the Santa Ana River estimated with the Watermaster's 2018 groundwater model update — the sum of these two terms equal the SARWM estimate of base flow discharge at Prado Dam. This figure also shows the five-year moving average of the annual flow-weighted TDS concentration of the Santa Ana River at Prado Dam, which is the metric the Regional Board uses to determine compliance with the Basin Plan TDS concentration objective of 650 mgl for Reach 2 of the Santa Ana River[3] (Reach 2 TDS metric) (Regional Board, 2008). Note that:

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maximum benefit-based SNMP that involved (1) defining a new groundwater quality management zone that encompasses the northern parts of MZ-1, MZ-2 and MZ-3 called the Chino-North GMZ, (2) establishing TDS and nitrate objectives for the Chino-North GMZ to numerically higher values than established for MZ-1, MZ-2 and MZ-3 to enable maximization of recycled water reuse and (3) committing to a program of salt and nutrient management activities and projects ("maximum benefit commitments") that ensure the protection of beneficial uses of the Chino-North GMZ and downgradient waters (the Santa Ana River and the Orange County GMZ). The technical work performed to support the maximum benefit SNMP proposal included the development and use of an analytical salt budget tool to project future TDS and nitrate concentrations in the Chino-North GMZ with and without the maximum benefit SNMP. The maximum benefit SNMP was incorporated into the Basin Plan by the Regional Board in January 2004.

[2] The Santa Ana River was adjudicated in the 1960s, and a stipulated judgment was filed in 1969 (OCWD v. City of Chino et al., Case No. 117628, County of Orange). Since the Judgment was filed, the SARWM has compiled annual reports.

[3] Reach 2 of the Santa Ana River spans from Prado Dam to 17th Street in Santa Ana.

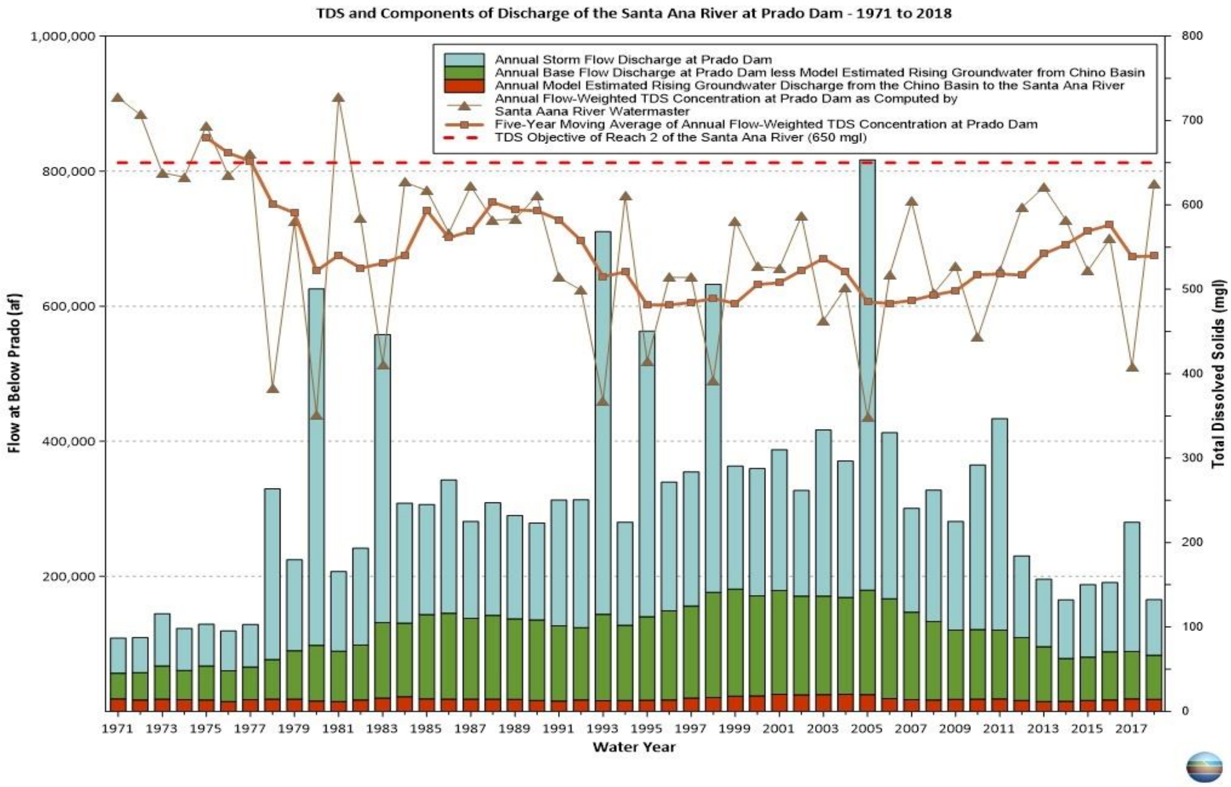
- Since about 1980, the annual estimates of the rising groundwater discharge from the Chino Basin to the Santa Ana River, which ranged from about 14,300 to 25,100 afy, have been a small percentage of the total annual flow at Prado Dam, ranging from about three percent during wet years to about 20 percent during dry years.
- From 2005 to 2015, the model-estimated groundwater discharge from Chino-North to the PBMZ, was about 2,400 afy without CCWF operation, representing a small fraction of the total rising groundwater from Chino Basin to the Santa Ana River: it represents about 13 percent of the rising groundwater discharge from the Chino Basin to the Santa Ana River, and about two percent of the total flow in the Santa Ana River at Prado Dam.
- In 2016, the CCWF commenced full production, meaning that the estimated groundwater discharge from Chino-North to the PBMZ was reduced to de minimis levels (less than 1,000 afy). The model projected groundwater discharge past the CCWF ranges from about 900 to 700 afy through 2050. This represents about four percent of the total rising groundwater discharge to the Santa Ana River from the Chino Basin, and less than one percent of the total flow in the Santa Ana River at Prado Dam.
- Since about 1980, the Reach 2 TDS metric has ranged between 481 and 603 mgl and has not exceeded the TDS objective of 650 mg/L—even during extended dry periods when storm water dilution of the Santa Ana River is relatively little (e.g. water years 1984 through 1992, 1999 through 2004, and 2012 through 2016).
- The Reach 2 TDS metric increased continuously from water year 2006 to water year 2016, which coincides with a dry climatic period and a steady decrease in the volume of base flow discharge. The decrease in baseflow is mostly attributable to the decrease in low-TDS wastewater discharges to the Santa Ana River.
- In water year 2018, the Reach 2 TDS metric decreased to 539 mgl.

These observations suggest that the rising groundwater discharge from the Chino Basin to the Santa Ana River has had a de minimis impact on the flow and TDS concentration of the Santa Ana River since about 1980 and has never contributed to an exceedance of the TDS objective for Reach 2. The groundwater discharge from the Chino-North to the PBMZ that becomes rising groundwater discharge in the Santa Ana River has historically been small compared to total discharge in the Santa Ana River, and has decreased due to operation of the CCWF. Based on the trends observed since 2005, the Reach 2 TDS metric will likely continue to increase as the other conditions that affect the flow and quality of the Santa Ana River change over time, such as continued reduction of wastewater effluent discharges to the River, changes in the source quality of discharges to the River, and/or an increase in the duration and frequency of dry periods due to climate change. Given that wastewater effluent discharges are projected to decline further, the maintenance of hydraulic control of Chino-North will become increasingly important to protecting downstream beneficial uses.

4.7.2.4 Flood Hazards

Because of high evaporation and percolation rates associated with the surrounding soils and the climate, runoff from normal rainfall generally soaks into the ground quickly if it falls on permeable surfaces. However, during abnormally intense rainfall, localized flooding may occur with stormwater collecting in slight topographic lows or along streets due to the limited capacity of storm drains and collection systems and before being conveyed into regional stormwater facilities. Urban development within the Chino Basin resulted in greater stormwater runoff that is verified through the measured increase in volume of storm flow downstream of Prado Dam.

EXHIBIT 4.7-2



Under the Federal Emergency Management Agency (FEMA) National Flood Insurance Program has created Flood Insurance Rate Map (FIRM) panels that delineate flood hazard areas. The FEMA FIRM panels for the Chino Basin are provided in the technical appendices as figures. The FEMA FIRM panels for the Chino Basin include the following[4]:

- 06037C1475F
- 06037C1725F
- 06037C1750F
- 06065C0018G
- 06065C0019G
- 06065C0038G
- 06065C0039G
- 06065C0667F
- 06065C0677G
- 06065C0678G
- 06065C0679G
- 06065C0681G
- 06065C0682G
- 06065C0683G
- 06065C0686G
- 06065C0687G
- 06065C0702G
- 06065C0705G
- 06071C7870J
- 06071C7890J
- 06071C7890J
- 06071C7895H
- 06071C7895J
- 06071C7915H
- 06071C7915H
- 06071C7920H
- 06071C8605H
- 06071C8606H
- 06071C8607H
- 06071C8608H
- 06071C8609J
- 06071C8615H
- 06071C8617J
- 06071C8628J
- 06071C8629H
- 06071C8630J
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- 06071C8654H
- 06071C8657H
- 06071C8659H
- 06071C8665H
- 06071C8667H
- 06071C8676J
- 06071C9330H
- 06071C9335H
- 06071C9375H
- 06071C9616H

[4] https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd&extent=-117.79023562011693,33.925122263182395,-117.50596437988294,34.06744215295162

These panels are provided in Volume 2 of the DSEIR, Technical Appendices, Appendix 7. The index maps provide the panel number for specific areas within each county, which if located within the Chino Basin are provided on the disc listed by panel number. By referencing these maps, it can be determined if proposed future projects associated with the OBMPU will be located within flood hazard areas. Flood hazard areas are also shown in city and county general plans (Safety Element) but these are not as accurate as the FEMA FIRM panels.

4.7.2.5 Groundwater

The Chino Basin encompasses about a 235 square mile area located in the upper Santa Ana River watershed (refer to Exhibits 1 and 2 of Chapter 3, Project Description) The Chino Basin is an alluvial valley that is relatively flat from east to west and slopes from the north to the south at a one to two percent grade. Elevations across the alluvial valley area range from about 2,000 feet in the foothills of the San Gabriel Mountains to about 500 feet near Prado Dam. The Chino Basin is bounded by: the San Gabriel Mountains and the Cucamonga Basin to the north; the Rialto-Colton Basin, Jurupa Hills, and the Pedley Hills to the east; the La Sierra area and the Temescal Basin to the south; and by the Chino and Puente Hills and the Pomona and Claremont Basins to the west.

The Chino Basin is one of the largest groundwater basins in southern California. The OBMP PEIR provides an estimate of groundwater in storage to be about 5,000,000 acre-ft of water and an unused storage capacity of about 1,000,000 acre-ft. More recent work by WEI indicates the actual groundwater stored in the Chino Basin may be 6,000,000 acre-ft or greater. Cities and other water supply entities within the basin produce groundwater for all or part of their municipal and industrial supplies; and about 300 to 400 agricultural users continue to produce groundwater from the basin. The Chino Basin is an integral part of the regional and statewide water supply system. Prior to 1978, the basin was in overdraft. After 1978, the basin has been operated as prescribed in the Judgment and the OBMP.

While considered one basin from geologic and legal perspectives, the Chino Basin can be hydrologically subdivided into at least five flow systems that act as separate and distinct hydrologic units (Figure 4.3-5). Each flow system can be considered a management zone, and the management zones delineated in the OBMP were determined based on these hydrologic units (WEI, 1999). Each management zone has unique hydrology, and water resource management activities that occur in one management zone has limited impacts on the other management zones.

The predominant sources of recharge to the Chino Basin groundwater reservoirs are percolation of direct precipitation and returns from applied water. The following is a list of other potential sources of recharge:

- Infiltration of flow within unlined stream channels overlying the basin
- Underflow from fractures within the bounding mountains and hills
- Artificial recharge of urban runoff, storm water, imported water, and recycled water at recharge basins
- Underflow from seepage across the bounding faults, including the Red Hill Fault (from Cucamonga basin), the San Jose Fault (from the Claremont Heights and Pomona basins), and the Rialto-Colton Fault (from the Rialto-Colton Basin)
- Deep percolation of precipitation and returns from use
- Intermittent underflow from the Temescal Basin

In general, groundwater flow mimics surface drainage patterns: groundwater flows from the forebay areas of high elevation (areas in the north and east flanking the San Gabriel and Jurupa Mountains) towards areas of discharge near the Santa Ana River within the Prado Flood Control Basin.

In detail, groundwater discharge throughout the Chino Basin primarily occurs via:

- Groundwater production
- Rising water within Prado Basin (and potentially other locations along the Santa Ana River, depending on climate and season)
- Evapotranspiration within Prado Basin (and potentially other locations along the Santa Ana River, depending on climate and season) where groundwater is near or at the ground surface
- Intermittent underflow to the Temescal Basin

4.7.2.5.1 Groundwater Monitoring

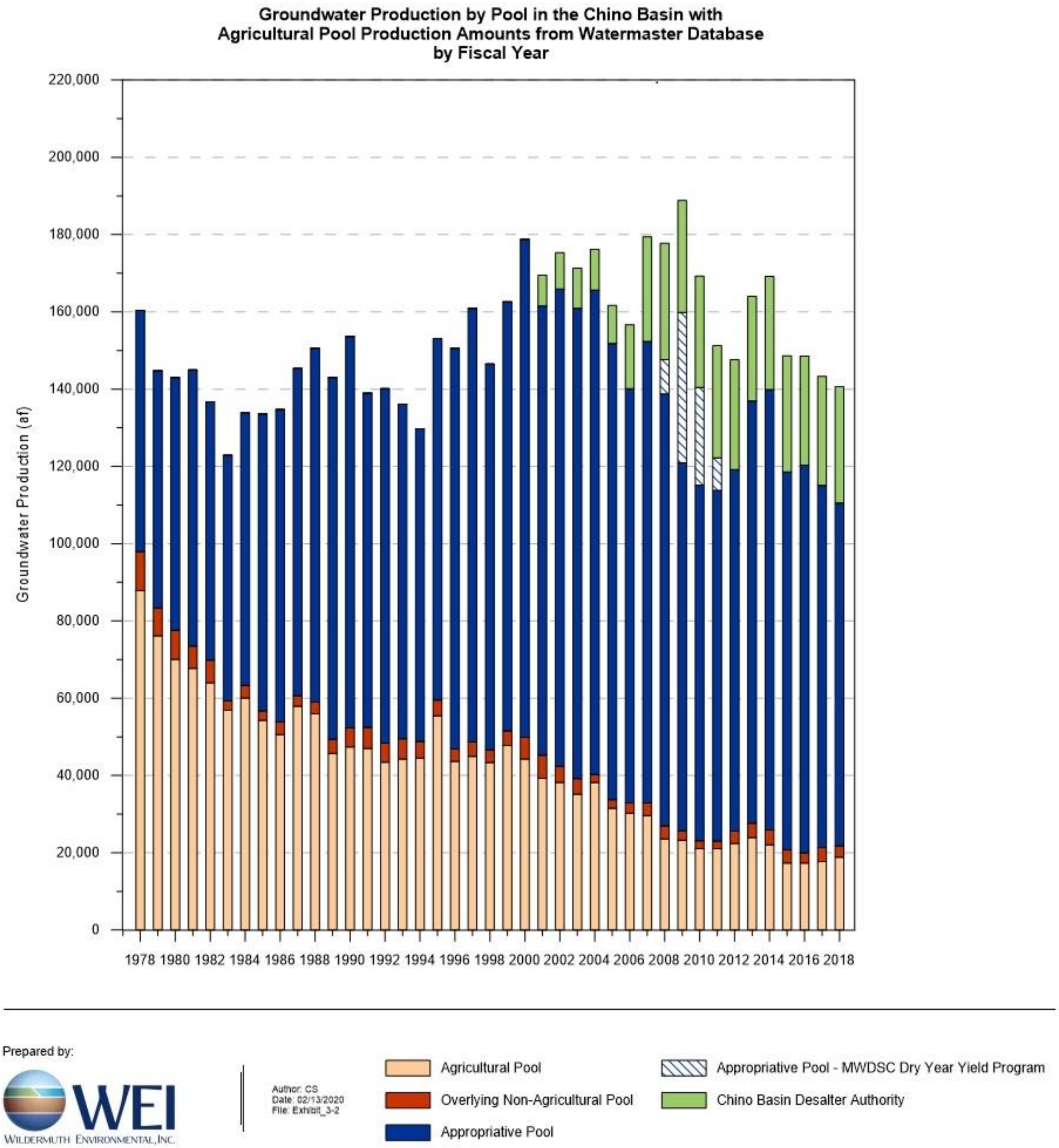
The environmental setting of groundwater monitoring in the Chino Basin is characterized in the Project Description (Exhibits 6-10).

4.7.2.5.2 Groundwater Pumping

Since its establishment in 1978, Watermaster has collected information to estimate total groundwater production from the Chino Basin. The Watermaster Rules and Regulations require groundwater producers that produce in excess of 10 afy to install and maintain meters on their well(s). Well owners that pump less than 10 afy are considered "minimal producers" and are not required to meter or report to the Watermaster. When the 2000 OBMP was adopted, many of the Agricultural Pool wells did not have properly functioning meters installed, so Watermaster initiated a meter installation program for these wells as part of PE 1. Meters were installed at most agricultural wells by 2003. Watermaster staff visit and record production data from the meters at these wells on a quarterly basis. For the remaining unmetered Agricultural Pool wells, including minimal producer wells, Watermaster applies a "water duty" method to estimate their production on an annual basis. Members of the Appropriative Pool and Overlying Non-Agricultural Pool, and the Chino Desalter Authority (CDA) record their own meter data and submit them to Watermaster staff on a quarterly basis. All Chino Basin production data are checked for accuracy and stored in Watermaster's relational database. Watermaster summarizes and reports the groundwater production data based on FY (July 1 to June 30). Watermaster uses reported production to quantify and levy assessments pursuant to the Judgment. Exhibit 8 (Project Description) shows the locations of all active production wells, symbolized by Pool, in the Chino Basin during FY 2017/2018.

The graph below shows bar charts depicting the annual groundwater production by Pool for FY 1977/1978 through 2017/2018 as recorded in Watermaster's database. Total annual groundwater production has ranged from a maximum of about 189,000 af during FY 2008/2009 to a minimum of about 123,000 af during FY 1982/1983 and has averaged about 153,000 afy. Since FY 1977/1978, Agricultural Pool production has decreased nearly 70,000 af—declining in proportion to the decline in total production—from 55 percent of total production in FY 1977/1978 to 13 percent in FY 2017/2018. During the same period, Appropriative Pool production increased by about 56,000 af—from 39 percent of total production in FY 1977/1978 to 85 percent as of FY 2017/2018—inclusive of production at the CDA wells. Production in the Overlying Non-Agricultural Pool declined from about six percent of total production in FY 1977/1978 to two percent as of FY 2017/2018.

EXHIBIT 4.7-3



The spatial distribution of production has also shifted since 1978. Figure 4.7-2 is a series of maps that illustrate the location and magnitude of groundwater production at wells in the Chino Basin for FYs 1977/1978 (Establishment of Watermaster), 1999/2000 (commencement of the OBMP), and 2017/2018 (current conditions).

The decline in agricultural production in the southern half of the Chino Basin has gradually been replaced by production at the CDA wells since FY 2000/2001. The CDA wells and treatment facilities were developed as part of OBMP PE 3 – Develop and Implement Water Supply Plan for the Impaired Areas of the Basin and PE 5 – Develop and Implement Regional Supplemental Water Program. The desalters are meant to enhance water supply reliability and improve groundwater quality in the Chino Basin. Figure 4.7-3 displays the locations of current and future desalter wells and treatment facilities. This figure also summarizes the history of desalter production in the southern portion of the Chino Basin and its nexus to the OBMP goals.

4.7.2.5.3 Artificial Recharge

The environmental setting of groundwater monitoring in the Chino Basin is characterized in the Project Description (Section 4.3.2; Exhibit 10).

4.7.2.5.4 Groundwater Levels

Figure 4.7-4 displays contours of equal groundwater elevation across the Chino Basin during the spring of 2018, showing the effects of about 18 years of OBMP implementation. The contours indicate that the regional groundwater flow is in a south-southwest direction from the primary areas of recharge in the northern parts of the Basin toward the Prado Basin in the south. There is a discernible depression in groundwater levels around the eastern portion of the Chino Basin Desalter well field, which demonstrates the achievement of Hydraulic Control in this area. This depression merged with the pumping depression around the JCSD well field to the east and increased the hydraulic gradient from the Santa Ana River toward the desalter well field. Additionally, there continues to be a notable pumping depression in the groundwater-level surface in the northern portion of MZ1 (Montclair and Pomona areas).

Changes in Groundwater Storage

Figure 4.7-5 shows the change in groundwater elevation during the 18-year period of OBMP implementation: spring 2000 to spring 2018. This map was created by subtracting a rasterized grid created from the groundwater elevations for spring 2000 from a rasterized grid created from the groundwater elevations for spring 2018. Groundwater levels have increased in the western portion of the basin. Groundwater levels have decreased in the central and eastern portions of the basin, and around the eastern portion of the Chino Desalter well field in the south. The changes in groundwater elevation shown here are consistent with projections from the Watermaster's groundwater modeling efforts (WEI, 2003a; 2007c; 2014a; 2015) that simulated the changes in the groundwater levels and flow patterns from the production and recharge strategies described in the Judgment, OBMP, Peace Agreement, and Peace II Agreement. These strategies include: desalter production in the southern portion of the Basin; controlled overdraft through Basin Re-operation to achieve Hydraulic Control; subsidence management in MZ1; mandatory recharge of Supplemental Water in MZ1 to improve the balance of recharge and discharge; and facilities improvements to enhance the recharge of storm, recycled, and imported waters. The changes of groundwater levels are illustrative of changes in storage.

State of Hydraulic Control

Figure 4.7-6 illustrates how groundwater elevations and flow directions have changed in the southern Chino Basin after 18 years of pumping at the Chino-I Desalter well field and 12 years of pumping at the Chino-II Desalter well field. Pumping at the CCWF began in 2014. The groundwater elevation contours depict a regional depression in groundwater levels surrounding the Chino-II Desalter well field and the eastern half of the Chino-I Desalter well field (east of I-20). This regional depression suggests that groundwater flowing south in the Chino-North MZ is being captured and pumped by the desalter wells. Furthermore, the contours southeast of the desalter well field (east of Archibald Avenue) indicate that the Santa Ana River is recharging the Chino Basin and flowing northwest towards the desalter wells. These observations indicate that Hydraulic Control is achieved east of well I-20. West of I-20, the contours suggest that some groundwater flows past the desalter wells. Groundwater modeling has shown that pumping at the CCWF well field decreases the volume of groundwater flow past the desalter wells to less than 1,000 afy, which the Regional Board defines as de minimis discharge. In 2017, pumping at the CCWF well field declined as well I-17 temporarily ceased operation due to a decrease in the maximum contaminant level for 1,2,3-TCP.

4.7.2.5.5 Groundwater Quality

The management of TDS and nitrate concentrations is essential to Watermaster's maximum benefit salt and nutrient management plan. In 2002, Watermaster proposed that the Regional Board adopt alternative maximum benefit water quality objectives for the Chino-North GMZ that were higher than the antidegradation water quality objectives for MZ1, MZ2, and MZ3. The proposed objectives were approved by the Regional Board and incorporated into the Basin Plan in 2004 (RWQCB, 2004). The maximum benefit objectives enabled Watermaster and the IEUA to implement recycled water recharge and reuse throughout the Chino Basin. The application of the maximum benefit objectives is contingent upon the implementation of specific projects and programs known as the "Chino Basin maximum benefit commitments." The commitments include requirements for basin-wide monitoring of groundwater quality, and the triennial recomputation of ambient TDS and nitrate. They also require the development of plans and schedules for water quality improvement programs when current ambient TDS exceeds the maximum benefit objective or when recycled water used for recharge and irrigation exceeds the discharge limitations listed in the IEUA's recycled water discharge and reuse permits.

The ambient water quality (AWQ) of GMZs in the Santa Ana Watershed are computed on a triennial basis and compared with the groundwater-quality objectives defined in the Basin Plan to determine assimilative capacity for TDS and nitrate and to assess if waste discharge requirements are protective of groundwater quality. AWQ represents the volume-weighted average constituent concentration for a GMZ and is derived from water quality statistics computed at wells based on a 20-year time-history of sample results.

In the Chino Basin, the Chino-North GMZ maximum-benefit objective is used as the measure of compliance to permit recycled water discharge and reuse. The Chino-North GMZ is the combined extent of MZ1, MZ2, and MZ3 up-gradient of the Prado Basin. The Chino-North maximum-benefit objective is numerically higher than the individual anti-degradation objectives set for MZ1, MZ2, and MZ3. If Watermaster and the IEUA do not implement the specific projects and programs described in the Chino Basin maximum-benefit commitments (Table 5-8 in the Basin Plan), the anti-degradation objectives will apply, and Watermaster and the IEUA will be required to mitigate TDS and nitrate loading from recycled water discharge and reuse above the anti-degradation objectives.

AWQ determinations have been made for seven 20-year periods: 1954-1973, 1978-1997, 1984-2003, 1987-2006, 1990-2009, 1993-2012 (WEI, 2000; 2005b; 2008a; 2011b; and 2014), and 1996-2015 (DBS&A, 2017). The AWQ determinations for 1999-2018 will be published in 2020. Figure 4.7-7 show trends in the ambient water quality determinations for TDS and nitrate.

From 1973 to 2015, the ambient TDS increased from 260 to 360 mgl but remains below the maximum-benefit objective of 420 mgl; 60 mgl of assimilative capacity remains. When the current ambient TDS exceeds the maximum-benefit objective, there will be a mitigation requirement for the recharge and direct use of recycled water. Based on the current rate of increase in the ambient TDS concentration for the Chino North MZ, assimilative capacity will likely exist until about 2033. In the Chino-East and Chino-South GMZs, the current ambient TDS concentrations are greater than the objectives. Because the TDS concentration of the recycled water reused by the Chino Basin parties in these GMZs is less than the antidegradation objectives of 730 and 680 mgl, there are no regulatory compliance challenges.

From 1973 to 2015, the ambient nitrate in Chino-North increased from 3.7 to 10.3 mgl and is currently above the maximum benefit objective of 5 mgl (Figure 4.7-8). To ensure recycled water recharge in the Chino-North GMZ is in compliance with the maximum benefit objective, Watermaster and the IEUA must recharge low-nitrate imported and storm waters such that the 12-month, volume-weighted concentration of the all recharge sources (storm water, recycled water, and imported water) is less than or equal to the maximum-benefit objective.

In the Chino-East and Chino-South GMZs, the current ambient nitrate concentrations are two to three times greater than the antidegradation objectives of 10 mgl and have been increasing since 1973.

For all GMZs, the increase in ambient constituent concentrations is likely related to an increase in the data available to perform the calculations since the implementation of the OBMP monitoring programs, opposed to actual the degradation of water quality.

Additional information on the environmental setting of water quality in the Chino Basin is characterized in the Project Description (Sections 4.3.3, 4.3.6 and 4.6.7; Exhibits 18-24).

4.7.2.5.6 Ground-level Monitoring Program

The environmental setting of subsidence in the Chino Basin is characterized in the Project Description (Exhibit 13).

4.7.3 Thresholds of Significance

The criteria used to determine the significance of impacts related to Hydrology and Water Quality may be considered potentially significant if the project would:

a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such the project may impede sustainable groundwater management of the basin?
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:
    (i) Result in substantial erosion or siltation onsite or offsite?
    (ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding onsite or offsite?
    (iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?; or,
    (iv) impede or redirect flood flows?
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

These impact issues are evaluated in Section 4.7.4 Project Impacts.

4.7.4 Regulatory Setting

In addition to the impact issues listed above, there are certain regulations that also are used to evaluate the potential significance of impacts on hydrology and water quality. These issues are summarized in the following text.

Federal

Federal Clean Water Act
Pursuant to Section 404 of the Clean Water Act, the United States Army Corps of Engineers (ACOE) regulates discharges of dredged and/or fill material into waters of the United States. "Waters of the United States" are defined in ACOE regulations at 33 C.F.R. Part 328.3(a). Navigable waters of the United States are those waters of the United States that are navigable in the traditional sense. Waters of the United States is a broader term than navigable waters of the United States and includes adjacent wetlands and tributaries to navigable waters of the United States and other waters where the degradation or destruction of which could affect interstate or foreign commerce.

The Federal Clean Water Act (CWA) requires all states to conduct water quality assessments of their water resources to identify water bodies that do not meet water quality standards. The water bodies that do not meet water quality standards are placed on a list of impaired waters pursuant to the requirements of Section 303(d) of the CWA.

The Federal Clean Water Act and the State Porter-Cologne Water Quality Act, require basin-wide planning. Additionally, the National Pollution Discharge Elimination System (NPDES), empowers the regional boards to set discharge standards, and encourages the development of new approaches to water quality management. As part of the NPDES program, a Storm Water Pollution Prevention Plan (SWPPP) must be prepared for construction activities affecting greater than one acre because the discharge of stormwater during construction is considered a non-point source of water pollution.

The Chino Basin is located in the Santa Ana Regional Water Quality Control Board (RWQCB) jurisdiction.

In 1972, the Federal Water Pollution Control Act (Clean Water Act) was amended to prohibit the discharge of pollutants to waters of the United States unless the discharge complies with a National Pollutant Discharge Elimination System (NPDES) permit. The Clean Water Act focused on tracking point sources, primarily from wastewater treatment facilities and industrial waste dischargers, and required implementation of control measures to minimize pollutant discharges. The Clean Water Act was amended again in 1987, adding Section 402(p), to provide a framework for regulating municipal and industrial storm water discharges. In November 1990, the U.S. Environmental Protection Agency (USEPA) published final regulations that establish requirements for specific categories of industries, including construction projects that encompass certain acreage, currently projects of one acre or larger.

National Pollutant Discharge Elimination System (NPDES) Program
As stated above, the NPDES permit program is administered in the State of California by the SWRCB and RWQCBs under the authority of the USEPA to control water pollution by regulating point sources that discharge pollutants into Waters of the US. A general NPDES permit covers multiple facilities within a specific activity category such as construction activities. A general permit

applies with same or similar conditions to all dischargers covered under the general permit. The proposed program would be covered under the general permits discussed below.

General Dewatering Permit
The SWRCB has issued General Waste Discharge Requirements (WDRs) under Order No. R8-2003-0061, NPDES No. CAG 998001 (Dewatering General Permit) governing non-stormwater construction-related discharges from activities such as dewatering, water line testing, and sprinkler system testing. The discharge requirements include provisions mandating notification, testing, and reporting of dewatering and testing-related discharges. The General WDRs authorize such construction-related discharges so long as all conditions of the permit are fulfilled. This permit would apply to the proposed program for the testing of the effluent pipelines and in the event that shallow perched groundwater is encountered during construction that requires dewatering.

Construction General Permit
The Construction General Permit NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Order 2009-0009-DWQ, NPDES No. CAS000002, Construction General Permit) regulates discharges of pollutants in stormwater associated with construction activity to waters of the U.S. from construction sites that disturb one or more acres of land surface, or that are part of a common plan of development or sale that disturbs more than one acre of land surface. The permit regulates stormwater discharges associated with construction or demolition activities, such as clearing and excavation; construction of buildings; and linear underground projects (LUP), including installation of water pipelines and other utility lines.

The Construction General Permit requires the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP) that includes specific BMPs designed to prevent pollutants from contacting stormwater and keep all products of erosion from moving offsite into receiving waters. The SWPPP BMPs are intended to protect surface water quality by preventing the off-site migration of eroded soil and construction-related pollutants from the construction area. Routine inspection of all BMPs is required under the provisions of the Construction General Permit. In addition, the SWPPP is required to contain a visual monitoring program, a chemical monitoring program for non-visible pollutants, and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment.

Industrial General Permit
The Industrial General Permit (IGP) became effective July 1, 2015 (Order No. 2014-0057-DWQ). The IGP covers ten broad categories of industrial activities, including sewage or wastewater treatment works that store, treat, recycle, and reclaim municipal or domestic sewage with a design flow of one million gallons per day or more, or are required to have an approved pretreatment program under 40 Code of Federal Regulations Part 403. For a sewage treatment facility, the IGP covers both the municipal or domestic sewage being sent to the facility for treatment, and rainwater falling on the facility that must be managed as stormwater. This is because rainwater falling on the facility is routed to the onsite treatment system to prevent contaminants from migrating offsite from the treatment facility.

Municipal Stormwater Permitting (MS4)
The State's Municipal Stormwater Permitting Program regulates stormwater discharges from Municipal Separate Storm Sewer Systems (MS4s). MS4 Permits were issued in two phases. Phase I was initiated in 1990, under which the RWQCBs adopted NPDES stormwater permits

for medium (serving between 100,000 and 250,000 people) and large (serving more than 250,000 people) municipalities. As part of the Phase II, the SWRCB adopted a General Permit for small MS4s (serving less than 100,000 people) and non-traditional small MS4s including governmental facilities such as military bases, public campuses, and hospital complexes. The permit also requires permittees to develop Comprehensive Bacteria Reduction Plans (CBRP).

National Flood Insurance Program (NFIP)
The NFIP is a Federal program enabling property owners in participating communities to purchase insurance protection against losses from flooding. This insurance is designed to provide an insurance alternative to disaster assistance to meet the escalating costs of repairing damage to buildings and their contents caused by floods. Participation in the NFIP is based on an agreement between local communities and the Federal Government that states if a community will adopt and enforce a floodplain management ordinance to reduce future flood risks to new construction in Special Flood Hazard Areas, the Federal Government will make flood insurance available within the community as a financial protection against flood losses.

In support of the NFIP, FEMA identifies flood hazard areas throughout the United States and its territories by producing Flood Hazard Boundary Maps (FHBMs), Flood Insurance Rate Maps (FIRMs), and Flood Boundary & Floodway Maps (FBFMs). Several areas of flood hazards are commonly identified on these maps. One of these areas is the Special Flood Hazard Area (SFHA) or high-risk area defined as any land that would be inundated by the 100-year flood — the flood having a 1-percent chance of occurring in any given year (also referred to as the base flood).

The high-risk area standard constitutes a reasonable compromise between the need for building restrictions to minimize potential loss of life and property and the economic benefits to be derived from floodplain development. Development may take place within the SFHAs, provided that development complies with local floodplain management ordinances, which must meet the minimum Federal requirements.

State

Porter-Cologne Water Quality Act
The Porter-Cologne Water Quality Control Act, also known as the California Water Code, is California's statutory authority for the protection of water quality. Under this act, the State must adopt water quality policies, plans, and objectives that protect the State's waters. The act sets forth the obligations of the State Water Resources Control Board (SWRCB or State Board) and Regional Water Quality Control Boards (RWQCBs or Regional Boards) pertaining to the adoption of Basin Plans and establishment of water quality objectives. Unlike the federal CWA, which regulates only surface water, the Porter-Cologne Act regulates both surface water and groundwater and this authority serves as the basis for Waste Discharge Requirements issued to municipal sewage treatment facilities by the RWQCBs. The Porter-Cologne Water Quality Act is promulgated in the California Code of Regulations Title 22. Title 22 includes treatment and reuse requirements for recycled water projects throughout California.

Anti-Degradation Policy
The SWRCB's Anti-Degradation Policy, otherwise known as Resolution No. 68-16, sets specific restrictions for surface and groundwater that have higher than the required quality in order to avoid degradation of those water bodies (SWRCB, 2010). Requirements of this policy must be included within all Water Quality Control Plans throughout California (discussed below). Under this policy, actions that would lower the water quality in designated water bodies would only be

allowed: if the action would provide a maximum benefit to the people of California, if it will not unreasonably affect beneficial uses, and if it will not lower water quality below applicable standards (SWRCB, 2010).

Water Recycling Requirements

The Santa Ana RWQCB Basin Plan requires that a discharge permit be obtained for the use of recycled water. Water Recycling Requirements (WRR) are prepared on a case-by-case basis for reuse of Title 22 recycled water as well as for discharge of fully advanced treated water intended for groundwater recharge or injection. WRRs are generally issued to the wastewater treatment agency but also cover intended uses. Water recycling criteria are contained in sections 60301 through 60355 of Title 22 and prescribe recycled water quality and wastewater treatment requirements for the various types of allowed uses in accordance with the SWRCB, Division of Drinking Water (DDW) (formerly a part of the California Department of Public Health (CDPH)).

Water Recycling Policy and Salt and Nutrient Management Plans

In February 2009, the State Water Resources Control Board (SWRCB) adopted Resolution No. 2009-0011, which established a statewide Recycled Water Policy. Draft amendments to the Recycled Water Policy were released in May 2012, September 2012, October 2012 (SWRCB hearing change sheets), and January 2013. The Recycled Water Policy Amendment was adopted by the SWRCB on January 22, 2013. The Recycled Water Policy encourages increased use of recycled water and local storm water. It also requires local water and wastewater entities, together with local salt/nutrient contributing stakeholders to develop a Salt and Nutrient Management Plan (SNMP) for each groundwater basin and subbasin in California.

Sustainable Groundwater Management Act

In 2014, the California State Legislature approved a combination of bills that together formed the Sustainable Groundwater Management Act (SGMA). SGMA requires the formation of local Groundwater Sustainability Agencies (GSAs) that must develop Groundwater Sustainability Plans (GSPs) for medium or high priority groundwater basins in California by 2022. The goal of the GSPs is to make groundwater basins sustainable by the year 2042. In San Bernardino County, the Valley District is forming a joint GSA with other groundwater management agencies in the region to begin preparing a GSP that will manage future groundwater extraction in the program area.

Recycled Water Groundwater Recharge Projects

On June 18, 2014, new regulations were adopted covering groundwater recharge for potable reuse with recycled water. The new regulations (CWC sections 13500-13529.4) outline permit requirements for recharging groundwater with recycled water for potable reuse in California. The regulations cover surface recharge and subsurface injection and transfer permitting responsibilities from the CDPH to the SWRCB Division of Drinking Water (DDW). The regulations include protocols to provide for source control, water quality control, retention time, emergency response planning, monitoring programs, operational plans, management plans, reporting requirements, and public review requirements.

California Water Code Section 1211

California Water Code section 1211 requires that: (1) the owner of any wastewater treatment plant obtain the approval of the SWRCB before making any change in the point of discharge, place of use, or purpose of use of treated wastewater where changes to the discharge or use of treated wastewater have the potential to decrease the flow in any portion of a watercourse and (2) the SWRCB review the proposed changes pursuant to the provisions of Water Code section 1700; In order to approve the proposed change, the State Water Board must determine that the proposed change will not operate to the injury of any legal user of the water involved.

Regional

Santa Ana Basin Plan
The SWRCB sets statewide policy and together with the RWQCBs implement state and federal laws and regulations. Each of the nine Regional Boards has adopted a Basin Plan. The Santa Ana Region Basin Plan covers parts of southwestern San Bernardino County, western Riverside County, and northwestern Orange County. The Basin Plan specifies water quality objectives for all surface waters within the Santa Ana watershed. Water quality objectives specified for the creeks and streams include total dissolved solids (TDS), hardness, chloride, sulfate, fluoride, sodium, and total inorganic nitrogen. Groundwater quality objectives for all groundwater basins address total coliform, chemical constituents, radioactivity, and taste and odor (Santa Ana RWQCB, 2016). Chino Basin-specific groundwater quality objectives addressed maximum benefit objectives for total dissolved solids (420 mg/L) and nitrogen (5 mg/L).

The Basin Plan has developed water quality objectives for both surface water and groundwater resources within the Santa Ana watershed. Water quality objectives for all resources address nitrate, TDS, metals, total coliform, chemical constituents, radioactivity, and taste and odor (Santa Ana RWQCB, 2016). Chino Basin-specific groundwater quality objectives have been developed for total dissolved solids (420 mg/L) and nitrogen (5 mg/L).

The *Water Quality Control Plan for the Santa Ana River Basin Region 8* (Basin Plan) provides the framework for the RWQCB's regulatory program (Santa Ana RWQCB, 2016). Specifically, it:

1. Sets forth surface and groundwater quality standards for the Santa Ana Region;
2. Identifies beneficial uses of water and discusses objectives that shall be maintained or attained to protect those uses;
3. Provides an overview of types of water quality issues, and discusses them in the context of potential threats to beneficial uses;
4. Denotes recommended or required control measures to address the aforementioned water quality issues;
5. Prohibits certain types of discharge in particular areas of the Region;
6. Summarizes relevant State Board and Regional Board planning and policy documents, and discusses other relevant water quality management plans adopted by federal, state, and regional agencies; and
7. Identifies past and present water quality monitoring programs, and discusses monitoring activities that could be implemented in future Basin Plan updates.

Overall, the Basin Plan functions as the regulatory authority for water quality standards established in local NPDES permits and other RWQCB decisions.

Local

County policies generally pertaining to hydrology and water quality have been included in the section below. Future projects under this SEIR will be analyzed at the program-level to assess the applicability of all local general plan and municipal code polices

<u>Chino Basin 2010 Recharge Master Plan Update</u>
On December 21, 2007, the Court ordered the Chino Basin Watermaster to prepare a Recharge Master Plan Update (RMPU) for Chino Groundwater Basin. In coordination with the Chino Basin Water Conservation District, IEUA, and the Judgment parties, the 2010 RMPU was developed through a stakeholder process. The RMPU outlines recharge estimations, summaries of the projected water supply availability, and the physical means to accomplish those recharge projections. The sections include: safe yield, local stormwater management and mitigation of the loss of safe yield, integrated review of water supply plans, stormwater recharge enhancement opportunities, supplemental water recharge enhancement opportunities, regional stormwater and supplemental water recharge facilities, and supplemental water for replenishment (Chino Basin Watermaster, 2013a).

<u>General Plan Policies</u>

County of San Bernardino General Plan
The following goals and policies within the Circulation and Infrastructure Element of the County of San Bernardino General Plan regarding hydrology and water quality that would be applicable to all program activities within the IEUA service area (County of San Bernardino, 2007).

Goal CI.11: The County will coordinate and cooperate with governmental agencies at all levels to ensure safe, reliable, and high quality water supply for all residents and ensure prevention of the surface and groundwater pollution.

Policy CI 11.1: Apply federal and state water quality standards for surface and groundwater and wastewater discharge requirements in the review of development proposals that relate to type, location, and size of the proposed project to safeguard public health.

Policy CI 11.10: Because the recharge of groundwater basins is vital to the supply of water in the County, and because these areas can function only when retained in open space, the County will consider retaining existing groundwater recharge and storm flow retention areas as open space lands.

Policy CI 11.11: Coordinate with all agencies providing water service and protection to achieve effective local and regional planning.

County of Riverside General Plan
The following goals and policies within the Land Use Element of the County of Riverside General Plan, revised April 16, 2019, regarding hydrology and water quality that would be applicable to all program activities within the Chino Basin.

LU 1.5 The County of Riverside shall participate in regional efforts to address issues of mobility, transportation, traffic congestion, economic development, air and water quality, watershed and habitat management with cities, local and regional agencies, stakeholders, Indian nations, and surrounding jurisdictions. (AI 4, 16)

LU 4.1f. Incorporate water conservation techniques, such as groundwater recharge basins, use of porous pavement, drought tolerant landscaping, and water recycling, as appropriate.

LU 5.3 Review all projects for consistency with individual urban water management plans (AI 3).

LU 18.4 Coordinate Riverside County water-efficiency efforts with those of local water agencies. Support local water agencies' water conservation efforts.

LU 21.2 Require that adequate and available circulation facilities, water resources, sewer facilities and/or septic capacity exist to meet the demands of the proposed land use. (AI 3) *(repeated for several land uses)*

City General Plans and Municipal Codes
The Chino Basin includes the following incorporated cities: Chino, Chino Hills, Eastvale, Fontana, Jurupa Valley, Montclair, Ontario, Pomona, Rancho Cucamonga, and Upland. The Basin includes limited areas of unincorporated Riverside and San Bernardino Counties. Each of these cities has its own General Plan and municipal code that pertain to protection of hydrological resources.

4.7.5 <u>Impacts Discussion</u>

a. Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?

The potential impacts to water quality standards are summarized in question (b) herein.

b. Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such the project may impede sustainable groundwater management of the basin?

The information presented herein is abstracted from the SFI final report published in January 2019 by WEI for the Chino Basin Watermaster and the 2020 SMP. The 2018 SFI analyzed the basin response from the Chino Basin Parties use of storage space up to 700,000 af and the conjunctive-use by Storage and Recovery Programs from 700,000 af to 1,000,000 af (including Metropolitan's DYYP). Based on the work done in the 2018 SFI, the storage space was divided into two bands: First Managed Storage Band (FMSB) of 800,000 af for use by the Chino Basin Parties and Metropolitan and 200,000 af of storage space between 800,000 af and 1,000,000 af for use by future Storage and Recovery Programs.

In this investigation, the groundwater level and flow response for all planning scenarios were evaluated using the Chino Basin groundwater model and related pre- and post-processing tools. Watermaster's Chino Basin groundwater model was last calibrated in 2013 using the historical period of 1960 through 2011. Since its calibration, the model input files have been updated annually and it has been used to complete various Watermaster engineering tasks, including periodic assessments of Hydraulic Control and providing information for SGMA compliance. The current version of the model is the 2017 Watermaster Chino Basin groundwater model (Model). The potential impact of future Storage and Recovery Programs on the movement of solvent plumes in the basin was evaluated with the USGS-MT3D model (USGS, 2016), a solute and reactive transport model, that uses the groundwater level and flow information directly from the Model and plume-specific information to project the movement of the groundwater plumes.

A Baseline planning scenario (Scenario 1A) based on expected groundwater pumping and recharge activities of the parties in the absence of Storage and Recovery Programs (as of 2017) was developed as a point of comparison to the Storage and Recovery Programs. And, Storage and Recovery Program scenarios based on the two bands (FMSB and the 200,000 af for use by future Storage and Recovery Programs) were also developed to compare against the Baseline and identify their impacts (Scenarios 2, 3 and 4). For increasing bands of storage, alternative facility and operating plans were developed, and are intended to bracket the reasonable use of existing facilities and new facilities required to implement Storage and Recovery Programs. The facilities included in the 2018 SFI that are required to implement the Storage and Recovery Programs do not specifically address the facilities proposed as part of the OBMPU, and outlined in the Project Description under Summary of All Facilities. However, these facilities fall under the same general project categories as those included as part of the OBMPU, and the impacts are assumed to correspond equally unless otherwise specified.

Scenarios 2-4 were built on the basis of Scenario 1A. Scenarios 2-4 were assumed to occur in ten-year, back-to-back operating cycles, consisting of four put years followed by three hold years and three take years. This operating pattern is identical to that used in the planning of the Dry-Year Yield Program (DYYP). Puts are conducted through wet-water recharge and or in-lieu recharge. Wet-water recharge can be conducted via spreading basins and/or ASR wells. Takes are conducted via existing and or new wells. A hold period consists of time between puts and take periods. The table below shows the relationship between the assumed puts, holds, and takes for each operational band.

EXHIBIT 4.7-4

Characterization of Operational Bands, Scenarios and Operating Cycles for Storage and Recovery Programs Investigated in the Storage Framework Investigation

Operational Band	Planning Scenarios	Storage Space Used (kaf)	Range in Managed Storage (kaf)	Operating Cycle (y)	Put Approach				Hold (y)	Take Approach			
					Maximum Annual Put (kafy)	Puts per Operating Cycle	Facilities Used	Cumulative Put Capacity above Band 1 (kafy)		Maximum Annual Take (kafy)	Takes per Operating Cycle	Facilities Used	Cumulative Take Capacity above Band 1 (kafy)
Band 1 (Local Managed Storage)	1A	700	0 to 700	-	-	-	-	-	-	-	-	-	-
Band 2	2A, 2B, 2C	100	700 to 800	10	25	4	Existing	25	3	33	3	Existing	33
Band 3	3A, 3B	100	800 to 900	10	25	4	Existing and New	50	3	33	3	Existing and New	67
Band 4	4A, 4B	100	900 to 1,000	10	25	4	Existing and New	75	3	33	3	Existing and New	100

The operating and facilities assumptions for Scenarios 2-4 were:

- Scenario 2 represents managed storage ranges of 700,000 to 800,000 af.
    - Puts in Scenario 2A were conducted entirely by in-lieu recharge. Each party’s annual in-lieu recharge was the lesser of that party’s put calculated proportionally to its take obligation and its capacity.
    - Puts in Scenario 2B were conducted entirely by wet-water recharge. MVWD’s ASR wells were assumed to operate at full capacity. Wet-water recharge in spreading basins was conducted using the following schedule: recharge occurs in MZ1 first up to its spreading capacity, then in MZ-3 up to its spreading capacity, and finally in MZ-2.
    - Puts in Scenario 2C were conducted half by wet-water recharge and half by in-lieu recharge.

  - All takes for Scenarios 2A, 2B, and 2C were based on the IEUA's and the Appropriative Pool parties' contractual obligations for the DYYP.
  - Scenario 2C takes were 33,300 afy for the first two years and 18,300 afy for the third year to mitigate a loss of net recharge identified during the evaluation of Scenarios 2A and 2B.
- Scenario 3 represents managed storage ranges of 800,000 to 900,000 af
  - In Scenario 3A, half of the put capacity required (12,500 afy) was assumed to occur at existing facilities, and the remaining puts would occur at new facilities. About 2,700 afy of puts were assumed to occur at the MVWD's ASR wells and about 9,800 afy of puts were assumed to be recharged in existing spreading basins. The remaining 12,500 afy of puts were assumed to occur at new ASR wells. For takes, it was assumed that six new ASR wells and two new recovery wells were required to pump 16,700 afy, and the remaining 16,600 afy would be pumped by the parties.
  - In Scenario 3B, 25,000 afy of puts were assumed to occur at new ASR wells. For takes it was assumed that 12 new ASR wells were required to pump the 33,300 afy to complete the take.
- Scenario 4 represents managed storage ranges of 900,000 to 1,000,000 af
  - In Scenario 4A, an additional 19,500 afy of puts were assumed to occur at existing spreading basins, and the remaining 5,500 afy of puts were assumed occur at new ASR wells. It was assumed that two additional wells would be required to conduct a take in addition to the facilities for Scenario 3A.In Scenario 4B, 9,800 afy of puts were assumed to occur at existing spreading basins, 2,700 afy of puts were assumed to occur at the MVWD ASR wells, and the remaining 12,500 afy of puts were assumed occur at new ASR wells. It was assumed that the facilities for Scenario 3B would be sufficient to conduct a take.

<u>Projected Groundwater Production for the Planning Period</u>

Projected pumping for Scenario 1A is shown in the table below, and ranges from about 145,000 af in 2020 to 176,800 in 2040.

TABLE 4.7-1
SCENARIO 1A PUMPING PROJECTIONS (AF)

Water Source	2015	2020	2025	2030	2035	2040
Chino Basin Groundwater	147,238	144,527	149,468	154,302	167,722	176,765

As mentioned earlier, Scenarios 2-4 were built on top of Scenario 1A. Thus, pumping changes as follows compared to Scenario 1A:

- Scenario 2C: During put years, pumping is about 12,000 afy less than pumping in Scenario 1A. During take year, pumping is about 18,000 to 33,000 afy more than pumping in Scenario 1A. Pumping stays the same for the two scenarios during hold years.
- Scenario 3A/B: During put years, pumping is about 12,000 afy less than pumping in Scenario 1A. During take year, pumping is about 67,000 afy more than pumping in Scenario 1A. Pumping stays the same for the two scenarios during hold years.
- Scenario 4A/B: During put years, pumping is about 12,000 afy less than pumping in Scenario 1A. During take year, pumping is about 100,000 afy more than pumping in Scenario 1A. Pumping stays the same for the two scenarios during hold years.

The impacts of the changes in project groundwater pumping and recharge projections are described under the "Projected groundwater levels" and "Impacts on groundwater quality" sections herein.

Projected Recharge for the Planning Period

The projected water budget for Scenario 1A is shown in Figure 4.7-9. These data were gathered from the 2018 SFI, and are used as the "baseline" to estimate impacts of storage and recovery impacts. Based on these date, the artificial recharge terms include:

- Stormwater Recharge in Spreading Basins. Annual estimates of stormwater recharged in stormwater facilities are listed in column 7. Stormwater recharge in spreading basins is estimated to be about 11,800 afy through 2020 and to increase to about 17,200 afy in 2021 with the completion of the 2013 RMPU projects.
- Recycled Water Recharge. Annual estimates of recycled water recharge are listed in column 8. Recycled water recharge is estimated to be about 16,000 afy in 2018, increase to 16,400 afy in 2019, and remain constant thereafter through the planning period.

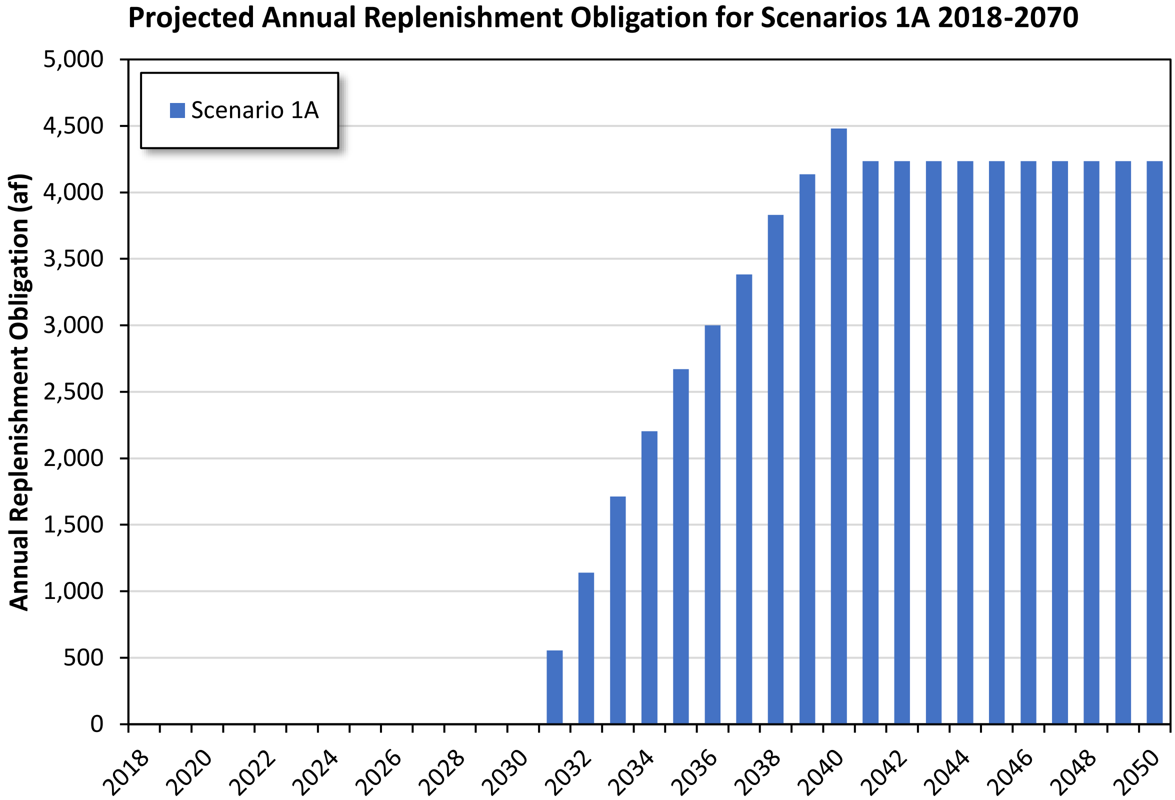
Annual estimates of imported water recharge are listed in column 9, shown in Figure 4.7-9. These data are also gathered from the 2018 SFId. Imported water recharge is estimated to be 3,010 afy through 2030, to decline to 0 afy in 2031, to gradually increase annually thereafter to about 4,200 afy by 2041, and to remain constant thereafter through the planning period. The imported water recharge includes wet water replenishment by the Parties.

As mentioned earlier, Scenarios 2-4 were built on top of Scenario 1A. Thus, recharge changes as follows compared to Scenario 1A:

- Scenario 2C: During put years, recharge is about 25,000 afy more than recharge in Scenario 1A, about 12,000 occurs as in-lieu and referred to as a reduction in pumping above. Recharge stays the same for the two scenarios during take and hold years.
- Scenario 3A/B: During put years, recharge is about 50,000 afy more than recharge in Scenario 1A, about 12,000 occurs as in-lieu and referred to as a reduction in pumping above. During take year, pumping is about 67,000 afy more than pumping in Scenario 1A. Recharge stays the same for the two scenarios during take and hold years.
- Scenario 4A/B: During put years, recharge is about 75,000 afy more than recharge in Scenario 1A, about 12,000 occurs as in-lieu and referred to as a reduction in pumping above. During take year, pumping is about 100,000 afy more than pumping in Scenario 1A. Recharge stays the same for the two scenarios during take and hold years.

The exhibit below shows projected replenishment obligations for Scenario 1A. Replenishment obligations do not change for Scenarios 2-4.

EXHIBIT 4.7-5



The impacts of the changes in project groundwater pumping and recharge projections are described under the "Projected groundwater levels" and "Impacts on groundwater quality" sections herein.

Projected Recharge and Replenishment Capacity

The table above summarizes the existing recharge capacity and the recharge capacity expected when the planned 2013 RMPU projects are online in 2021. Stormwater recharge varies by year, based on hydrologic conditions, and averaged about 10,150 afy during the period FY 2004/2005 through FY 2017/2018 (period of available historical data). The net new stormwater recharge from MS4 projects constructed in the period FY2000/2001 through FY 2017/2018 is estimated to average about 380 afy. Supplemental water recharge in recharge basins occurs during non-storm periods. The recharge capacity available for supplemental water recharge varies from year to year based on the hydrologic conditions and is projected to average about 56,600 afy (WEI, 2018). The ASR and in-lieu recharge capacities are estimated to be about 5,480 afy and 17,700 afy, respectively (WEI, 2018). The initial OBMP recharge master plan was developed in 2002; its current version is the 2013 Amendment to the 2010 Recharge Master Plan Update (2013 RMPU) (WEI, 2013). The projects selected for implementation in the 2013 RMPU involve improvements to existing recharge facilities and the construction of new facilities that, in aggregate, will increase the recharge of stormwater and dry-weather flow by 4,900 afy and increase recycled water recharge capacity by 7,100 afy. These projects are expected to be fully constructed and operational by 2021. Pursuant to the Peace II Agreement, Watermaster and the IEUA update their recharge master plan on a five-year frequency, Watermaster and the IEUA completed the 2018 RMPU in October 2018, with the next plan scheduled to be completed in October 2023.

EXHIBIT 4.7-6
ESTIMATED RECHARGE CAPACITIES IN THE CHINO BASIN (AF)

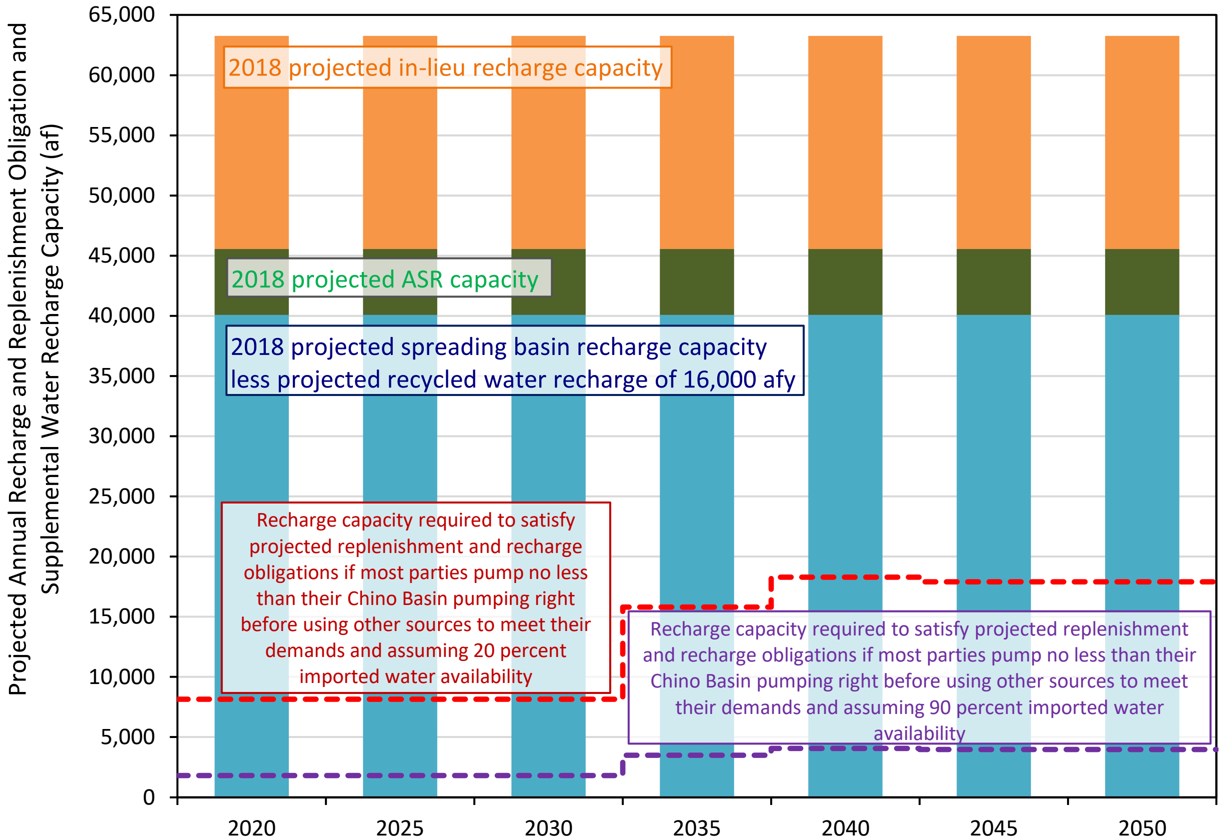
Water Type	Recharge Type	2018 Conditions	2018 Conditions Plus Current Recommended 2013 RMPU Projects
Stormwater	Average Stormwater Recharge in Spreading Basins	10,150	14,950
	Average Expected Recharge of MS4 Projects	380	380
	Subtotal	10,530	15,330
Supplemental Water	Spreading Capacity for Supplemental Water	56,600	56,600
	ASR Injection Capacity	5,480	5,480
	In-Lieu Recharge Capacity[1]	17,700	17,700
	Subtotal	79,780	79,780
Total		90,310	95,110

Future supplemental water recharge capacity requirements are estimated by assessing future supplemental water recharge projections in the context of the availability of supplemental water for recharge. Recycled water is assumed 100-percent reliable, and therefore the recharge capacity requirement to recharge recycled water is assumed equal to its projected supply. The imported water supply from MWDSC is assumed to be 20 percent reliable (available one out of five years) without full implementation of its 2015 Integrated Resources Plan (IRP) and 90 percent reliable (available nine out ten years) with it (WEI, 2018). Therefore, the recharge capacity required to meet recharge and replenishment obligations with imported water supplied by Metropolitan is five times the projected recharge and replenishment requirement without full implementation of the 2015 IRP and about 1.1 times the projected recharge and replenishment requirement with its full implementation. The chart above shows the recharge capacity available at recharge basins less that used for recycled water recharge, in-lieu recharge capacity, and ASR recharge capacity as a stacked bar chart—the total supplemental capacity being the sum of these recharge capacities. The chart also shows the time history of the supplemental water recharge capacity required to recharge imported water from Metropolitan without and with full implementation of Metropolitan's 2015 IRP.

As the chart below shows, whether or not Metropolitan fully implements its 2015 IRP, Watermaster and the IEUA are projected to have enough recharge capacity available to meet all of their recharge and replenishment obligations through 2050.

EXHIBIT 4.7-7

Comparison of Projected Annual Recharge and Replenishment Obligation to Supplemental Water Recharge Capacity



For Scenarios 2-4, assumed recharge capacity changes as follows:

- Scenario 2C: No new recharge capacity compared to Scenario 1A.
- Scenario 3A: Assumes an increase of 12,500 afy in recharge capacity from new ASR wells compared to Scenario 1A.
- Scenario 3B: Assumes an increase of 25,000 afy in recharge capacity from new ASR wells compared to Scenario 1A.
- Scenario 4A: Assumes an increase of 5,500 afy in recharge capacity from new ASR wells compared to Scenario 3A.
- Scenario 4B: Assumes an increase of 12,500 afy in recharge capacity from new ASR wells compared to Scenario 3B.

Projected Groundwater Levels

Groundwater Level Change Maps Across Chino Basin

The attached series of figure (Figures 4.7-10 through 4.7-15) show the changes in groundwater levels between July 2017 and July 2056 for Scenarios 2C, 3A, 3B, 4A, and 4B, respectively. The trends in projected groundwater level changes between 2017 and 2056 are summarized below.

The impacts of the changes in project groundwater pumping and recharge projections on groundwater levels are evaluated under four categories: pumping sustainability, subsidence, net recharge, and hydraulic control.

Impacts on Pumping Sustainability due to Changes in Groundwater Levels

The term sustainability, as used herein, refers specifically to the ability to pump water from a specific well at a desired production rate, given the groundwater level at that well, its specific well construction, and current equipment details. Pumping sustainability metrics are defined for each well by its owner. Groundwater production at a well is presumed to be sustainable if the model-projected groundwater level at that well is greater than the sustainability metric. If the groundwater level falls below the sustainability metric, the owner will either need to lower the pumping equipment in their well or reduce the well's pumping rate.

The increase in storage and subsequent removal of stored water will raise groundwater levels during the put and hold periods and lower groundwater levels thereafter until the stored water is completely pumped out. This increase and decrease in groundwater levels may impact the parties in the basin disproportionately. Pumping sustainability becomes a concern if Storage and Recovery Program operations cause groundwater levels to fall below sustainable pumping levels at the parties' wells when the stored water is removed.

The series of exhibits below (Exhibits 4.7-8 through 4.7-13) show the projected difference between the groundwater levels and the pumping sustainability metric for the initial condition in 2017 and at the end of the second, third, and fourth operating cycles (2036, 2046, and 2056, respectively) for Scenarios 1A, 2C, 3A, 3B, 4A, and 4B, respectively.

EXHIBIT 4.7-8
SCENARIO 1A

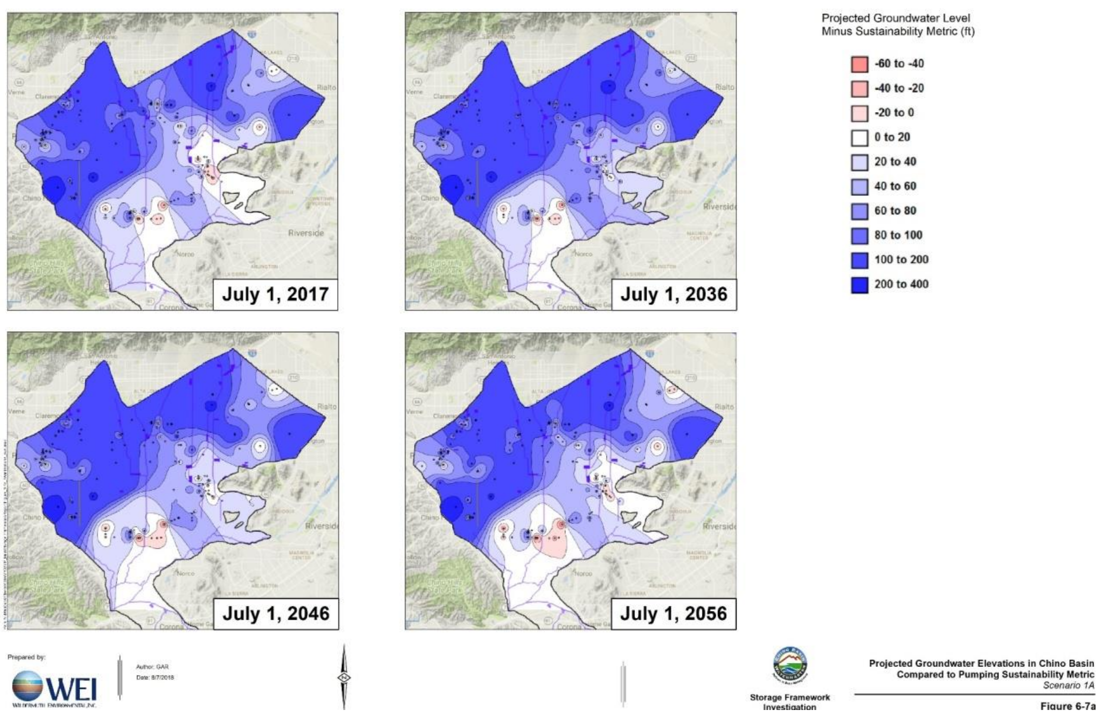


EXHIBIT 4.7-9
SCENARIO 2C

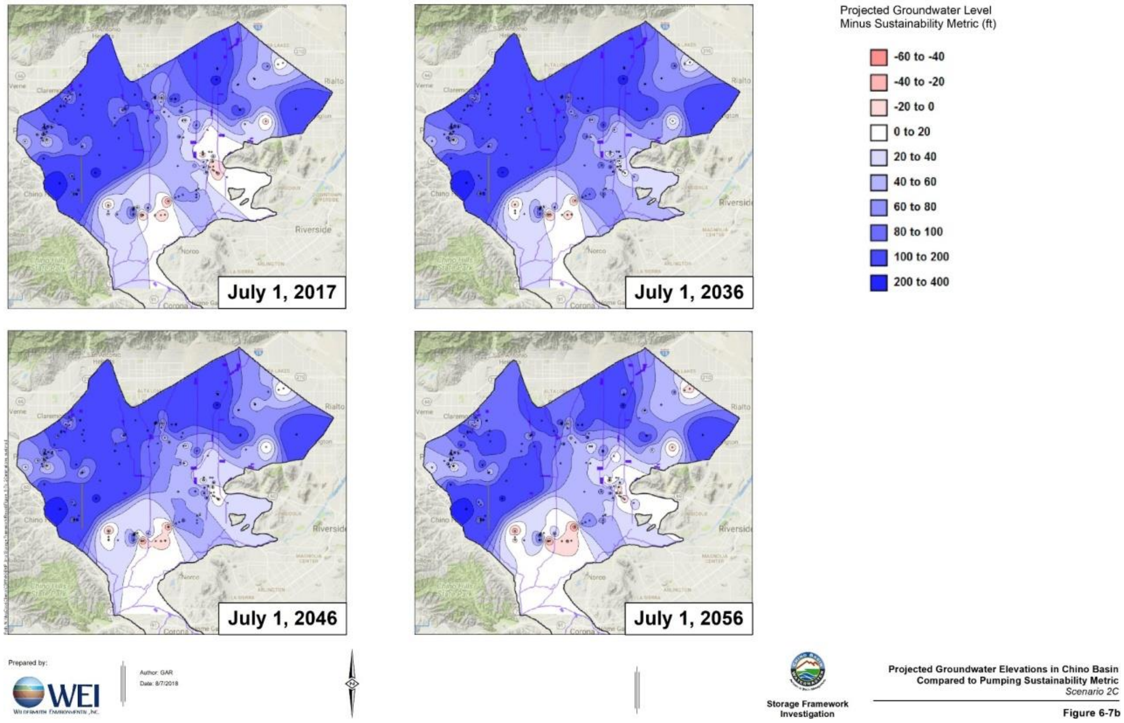


EXHIBIT 4.7-10
SCENARIO 3A

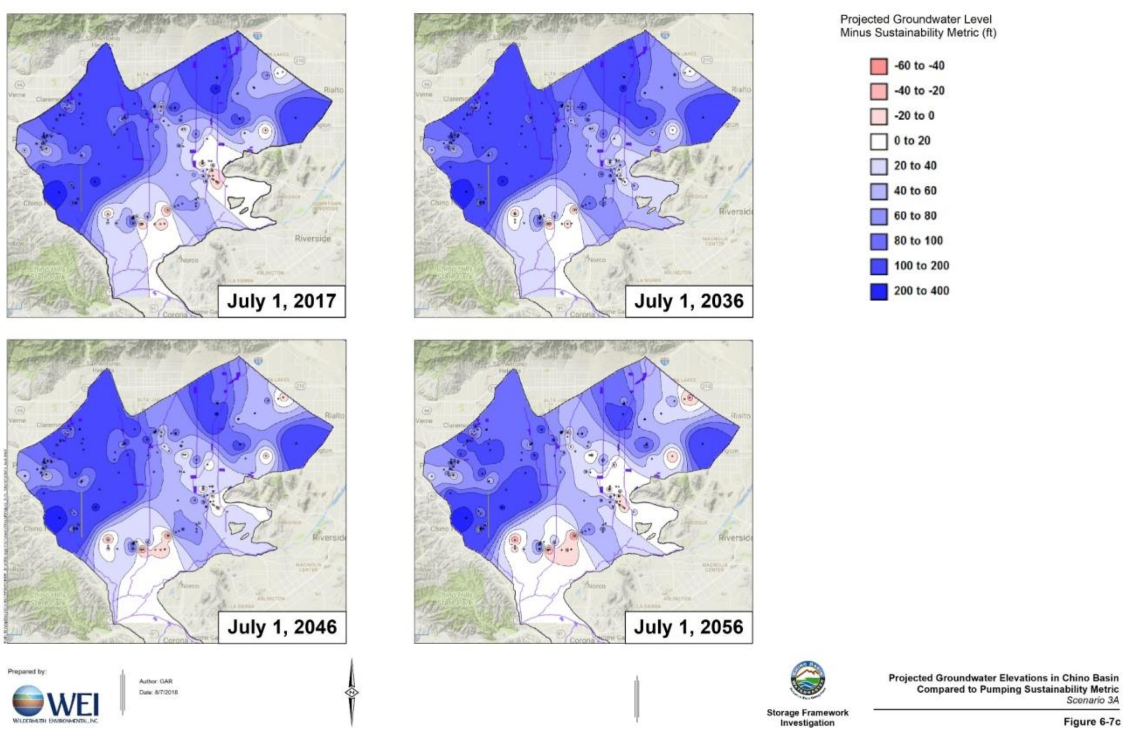


EXHIBIT 4.7-11
SCENARIO 3B

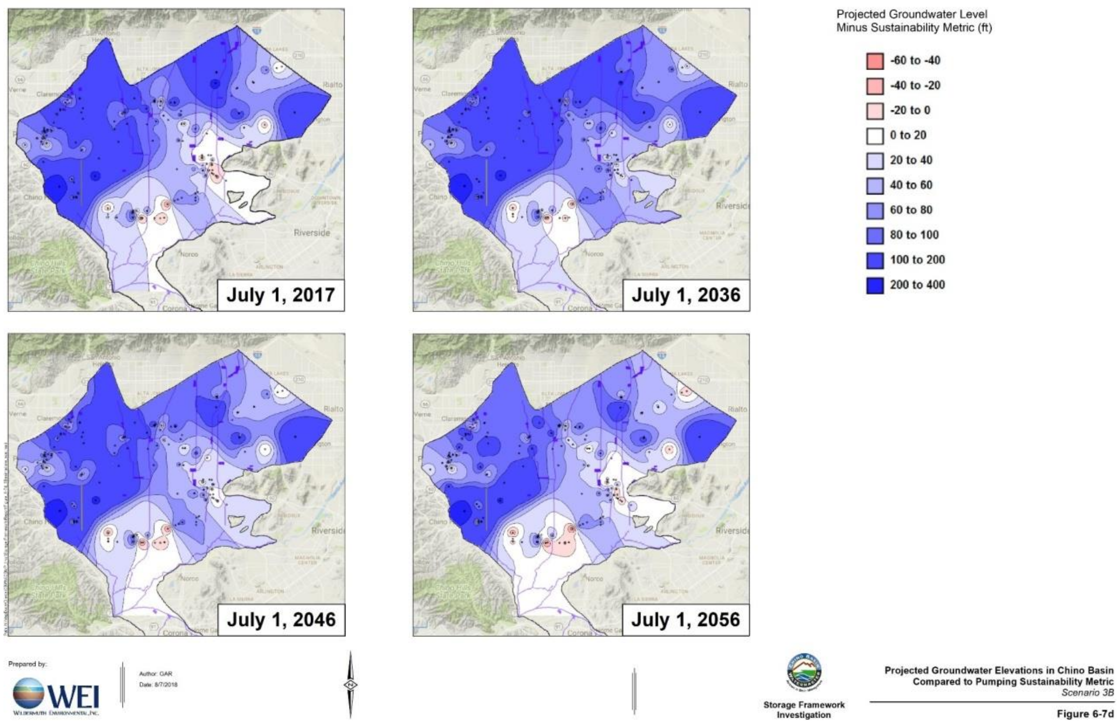


EXHIBIT 4.7-12
SCENARIO 4A

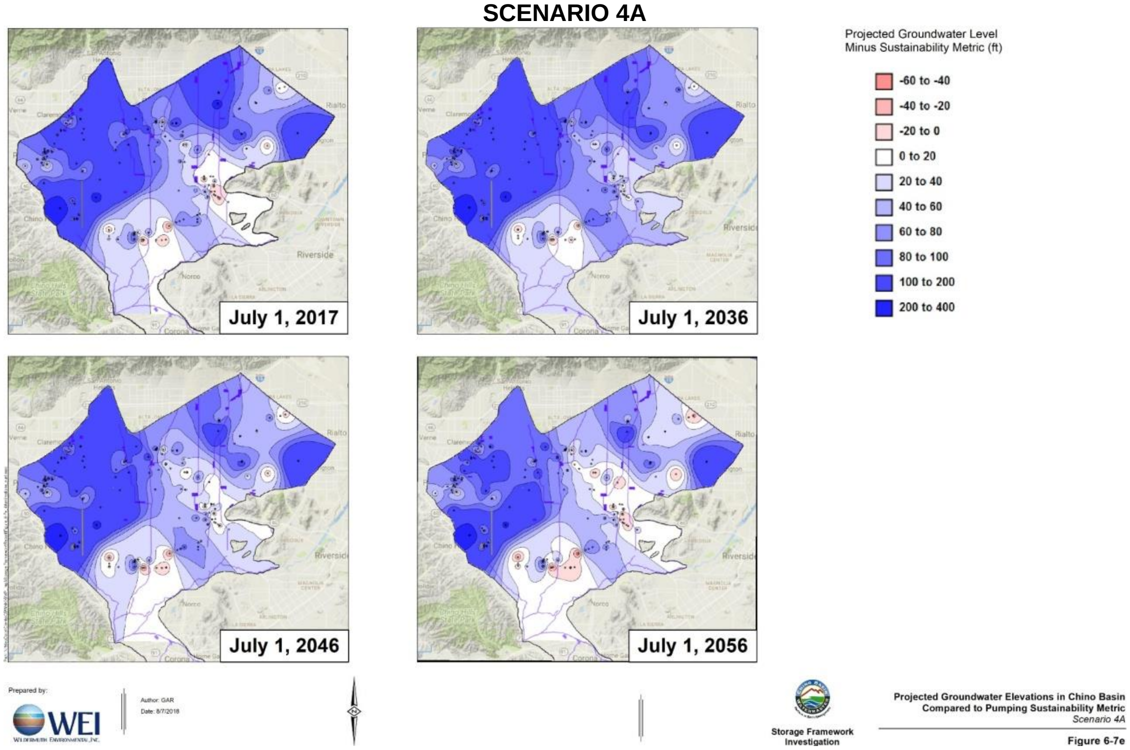
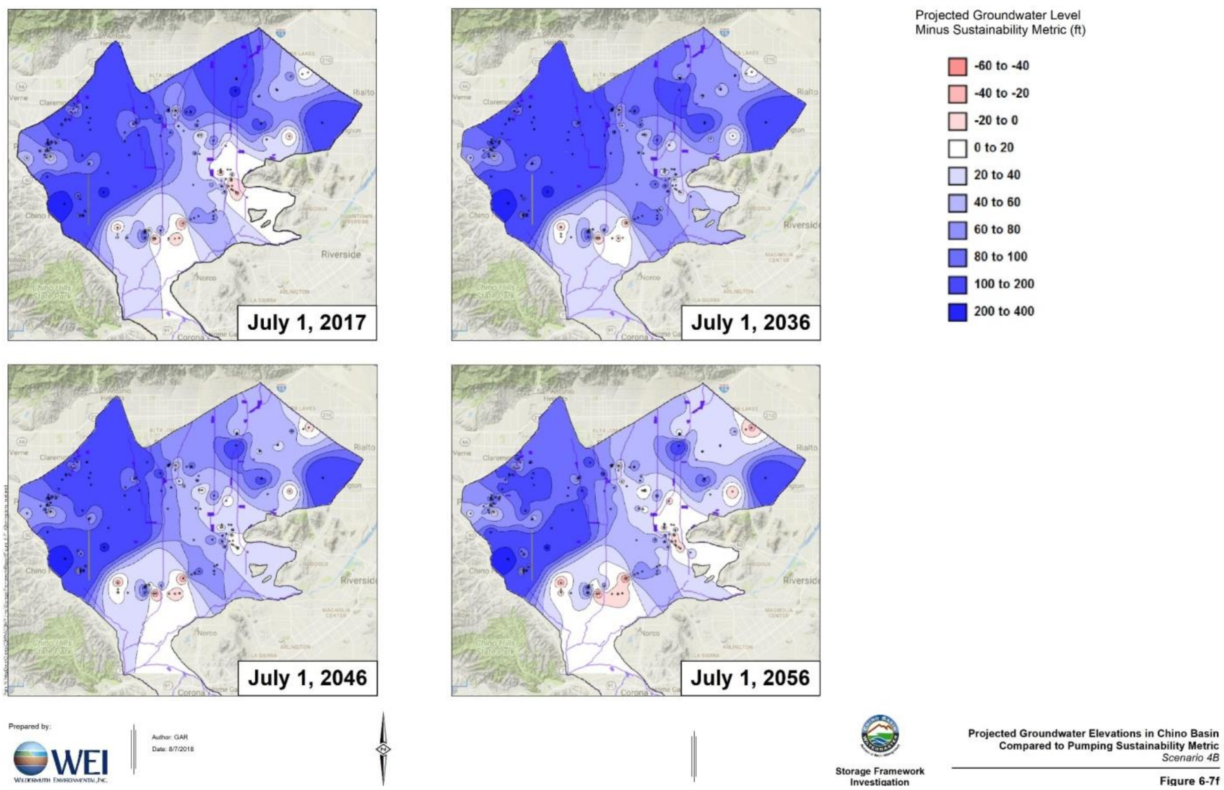


EXHIBIT 4.7-13
SCENARIO 4B



Review of these exhibits indicates that noticeable changes in pumping sustainability relative to baseline Scenario 1A are evident in 2046 and 2056. These observations are summarized in the table below.

TABLE 4.7-2
CHARACTERIZATION OF THE CHANGE IN PUMPING SUSTAINABILITY OBSERVED IN STORAGE AND RECOVERY PROGRAM SCENARIOS

Area	2046					2056				
	2C	3A	3B	4A	4B	2C	3A	3B	4A	4B
Eastern FWC	nc	-	nc	-	-	nc	-	nc	-	-
SE Ontario	nc	nc	nc	nc	nc	nc	-	nc	-	-
JCSD Wellfield	nc	-	nc	-	nc	+	-	nc	-	Nc
CDA Wellfield	nc	nc	+	+	+	nc	nc	nc	nc	Nc

Note: “-” means reduction in pumping sustainability, “nc” means no change, “+” means improvement in pumping sustainability—interpretation based on the change in size of areas, relative to Scenario 1A, where groundwater levels fall below the sustainability metric.

The changes in pumping sustainability caused by the Storage and Recovery Programs in Scenarios 2C, 3A, 3B, 4A, and 4B relative to baseline Scenario 1A are summarized below:

- There are no projected changes in pumping sustainability in Scenario 2C except in the JCSD well field area where pumping sustainability is projected to improve slightly sometime in the period between 2046 and 2056.
- The pumping sustainability in Scenario 3A is projected to be reduced in the eastern FWC service area and JCSD wellfield area by 2046 and in the southeastern Ontario service area sometime between 2036 and 2046.
- The pumping sustainability in Scenario 3B is projected to be unchanged through 2046 except for the CDA well field where pumping sustainability is projected to be improved slightly and unchanged thereafter through 2056.
- The pumping sustainability in Scenario 4A is projected to be reduced in the eastern FWC service area and JCSD well field area, unchanged in the southeastern Ontario service area, and improved slightly in the CDA wellfield by 2046; it is projected to be reduced in the eastern FWC and Ontario service areas and the JCSD well field area and unchanged in the CDA wellfield during the period of 2046 through 2056.
- The pumping sustainability in Scenario 4B is projected to be reduced in the eastern FWC service area, unchanged in the southeastern Ontario service area and JCSD well field area, and improved slightly in the CDA wellfield area in 2046; reduced in the eastern FWC and southeastern Ontario service areas sometime between 2046 and 2056; and unchanged in the JSCD and CDA wellfields between 2046 and 2056.

The projected reduction in pumping sustainability later in the planning period for Scenarios 3A, 3B, 4A, and 4B results from the planned reduction in storage in operational band 1 combined with the additional reduction in storage caused by not reducing the takes to account for storage program-induced reductions in net recharge. Recall that the takes in Scenario 2C were reduced to account for the storage program-induced reductions in net recharge, and there are no projected reductions in pumping sustainability in Scenario 2C.

<u>Impact Conclusion</u>
The impacts to groundwater sustainability may be significant, however mitigation is provided below that will minimize impacts below significance thresholds. This is for the following reasons:

- Potential changes in pumping sustainability relative to baseline Scenario 1A are not evident until 2046 and 2056, more than 25 years from current conditions, which will enable Watermaster to monitor groundwater pumping and implement appropriate mitigation when/if pumping sustainability declines, thereby preventing MPI.
- Loss of pumping sustainability caused by a Storage and Recovery Program is considered MPI under the Peace Agreement. Under the 2020 SMP, and enforced through mitigation provided below, Watermaster will review each Storage and Recovery Program application, estimate the surface and ground water systems response, prepare a report that describes the response and potential MPI, and develop mitigation requirements to mitigate MPI caused by the proposed Storage and Recovery Program. The Storage and Recovery Program applicant will develop mitigation measures pursuant to these requirements and incorporate them into their Storage and Recovery Program application. Upon approval by Watermaster, these mitigation measures will be incorporated into the Storage and Recovery Program storage agreement.
- Watermaster conducts comprehensive groundwater-level monitoring under the Peace Agreement and Court orders. The information developed from this monitoring will be used to identify potential impacts on pumping sustainability and to develop mitigation

requirements to mitigate for these impacts. Potential mitigation include: (1) modifying the put and take cycles to minimize impacts to pumping sustainability, (2) strategically increasing supplemental water recharge to mitigate loss of pumping sustainability, (3) modifying a party's affected well (lowering pump bowls), (4) providing an alternate supply to the affected party to ensure it can meet its demands, (5) a combination of (1) through (4), and (6) the implementation of a monitoring program to verify the effectiveness of the mitigation actions. The Project Description contains facilities and their operations that can be used to implement these mitigation actions.

Impacts on Subsidence due to Changes in Groundwater Levels

Watermaster has been conducting subsidence investigations in MZ-1 since September 2000. Detailed information on Watermaster's land subsidence investigations, causes of subsidence, Watermaster's subsidence management plan for the so-called managed area in the City of Chino, and annual monitoring reports and ongoing investigations to develop a land subsidence management plan for the northwest MZ-1 area can be found on Watermaster's website.[5] This body of work includes the review of historical land subsidence across the basin using In SAR, ground level surveys, the construction and monitoring of vertical and horizontal extensometers, controlled pumping tests, rigorous review of basin hydrogeology, and numerical modeling.

PA-7 is the key subsidence indicator well used in Watermaster's MZ-1 Long Term Management Plan for the managed area in the City of Chino. Under this plan, basin management activities must maintain a groundwater elevation greater than the guidance level of 400 feet above mean sea level (ft-amsl) at the PA-7 piezometer to ensure that permanent new land subsidence does not occur. The guidance level is defined as the threshold groundwater elevation at the onset of inelastic compaction of the aquifer system as recorded by the Ayala Park extensometer. The guidance level was established by Watermaster and is subject to change based on the periodic review of monitoring data.

To evaluate the risk of MPI due to subsidence over the entirety of MZ-1, historical groundwater levels were used to develop a groundwater level control surface (new land subsidence metric) throughout MZ-1 that defined the likelihood of initiating new subsidence: if groundwater levels are greater than the new land subsidence metric, then new land subsidence would not occur; if groundwater levels fall below the new land subsidence metric, then new land subsidence could occur and cause MPI.

The western part of the basin is either susceptible to or actively experiencing land subsidence. The areas of current concern include the so-called "managed area" and the northwest MZ1 area. Land subsidence in the "managed area" has been reduced to de minimis levels through the voluntary efforts of the Cities of Chino and Chino Hills. Land subsidence in the northwest MZ1 area, including parts of the Cities of Chino, Montclair, Ontario, and Pomona, is continuing, and Watermaster is currently in the process of developing a land subsidence management plan in this area. New land subsidence becomes a concern if Storage and Recovery Program operations cause groundwater levels to fall below the new land subsidence metric in the areas susceptible to land subsidence. And, pursuant to the Peace Agreement, this new land subsidence is an MPI and would require mitigation. In this investigation, we use the term new land subsidence to refer to land subsidence caused by the lowering of groundwater levels below the current estimate of the new land subsidence metric. The ongoing subsidence in northwest MZ-1 is occurring because

[21] https://cbwm.syncedtool.com/shares/folder/9abb162877b999/?folder_id=1055

the groundwater levels in that area have been and are currently less than the preconsolidation stress.

The series of exhibits below (Exhibits 4.7-14 through 4.7-19) show the projected difference between groundwater levels and the new land subsidence metric at the end of each storage and recovery cycle in 2036, 2046, and 2056 for Scenarios 1A, 2C, 3A, 3B, 4A, and 4B, respectively. The trends in groundwater level changes compared to the new land subsidence metric between 2017 and 2050 are summarized below.

- Groundwater levels in Scenario 1A are projected to be above the new land subsidence metric through 2050, as stated in Section 5, and are therefore not expected to result in new land subsidence through 2050. By 2056, groundwater levels are projected to fall below the new land subsidence metric for two small areas in central-eastern MZ1. These are the same two areas identified in Section 5.2.1 for Scenarios 1B and 1C.
- Groundwater levels in Scenarios 2C through 4B are projected to be above the new land subsidence metric through 2046 and are therefore not expected to result in new land subsidence through 2046. By 2056, groundwater levels are projected fall below the new land subsidence metric for two small areas in central-eastern MZ1 for Scenarios 3A through 4B. These are the same areas identified for Scenarios 1B and 1C in Section 5.2.1 and for Scenario 1A in this section.

The new land subsidence projections described above indicate, for the baseline scenarios described in Section 4 and in Storage and Recovery Program scenarios described in this section, that new land subsidence could occur by 2056 under baseline conditions (Scenarios 1A) and with Storage and Recovery Programs operating (Scenarios 2C through 4B). Under the assumptions used in this analysis, the projected decline in storage and associated new land subsidence is a result of the pumping and recharge plans associated with the parties as represented in baseline Scenario 1A and not related to implementing Storage and Recovery Programs as represented in Scenarios 2C through 4B.

EXHIBIT 4.7-14
SCENARIO 1A

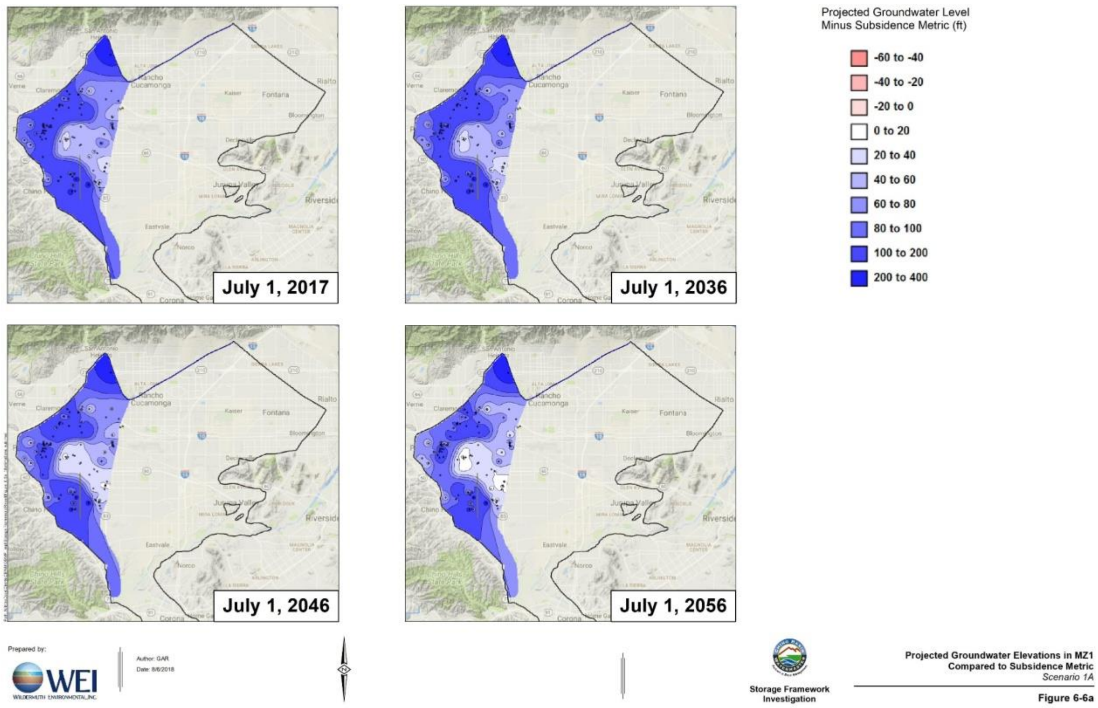


EXHIBIT 4.7-15
SCENARIO 2C

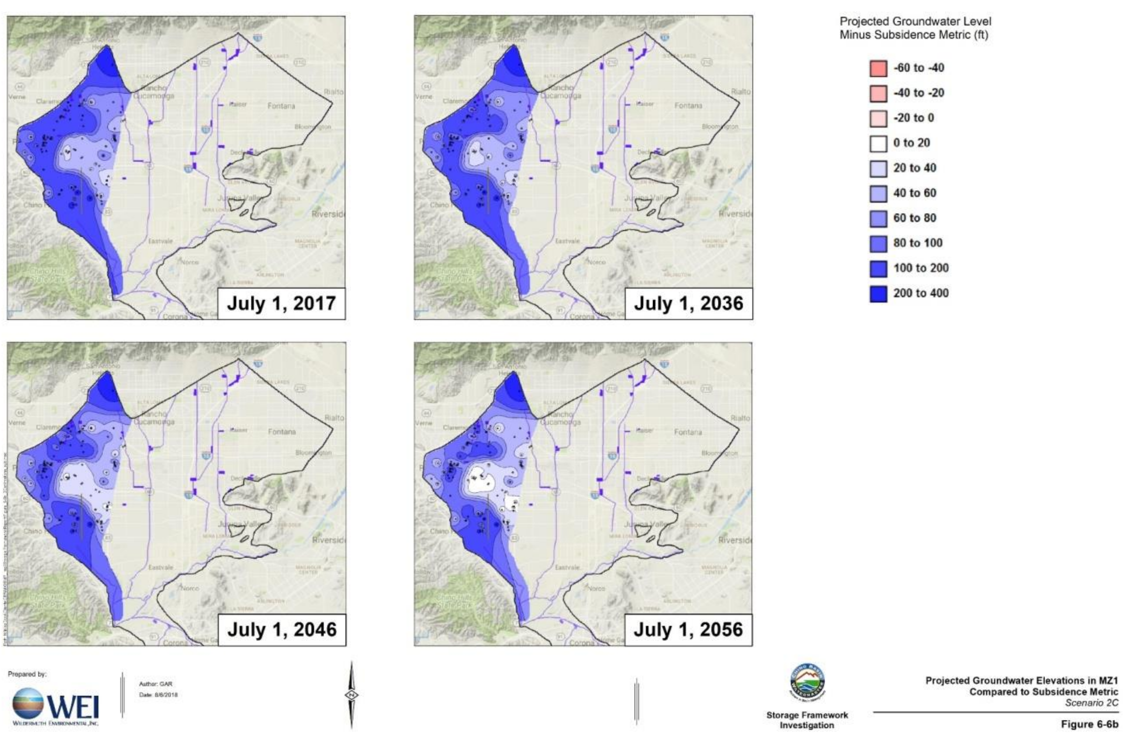


EXHIBIT 4.7-16
SCENARIO 3A

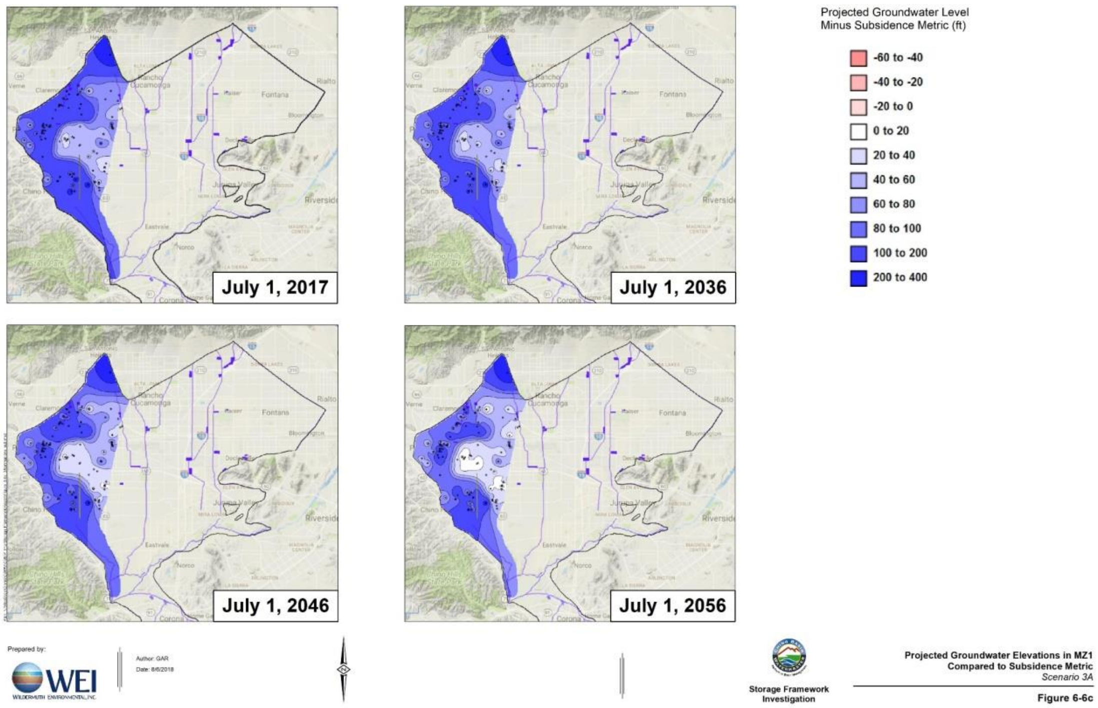


EXHIBIT 4.7-17
SCENARIO 3B

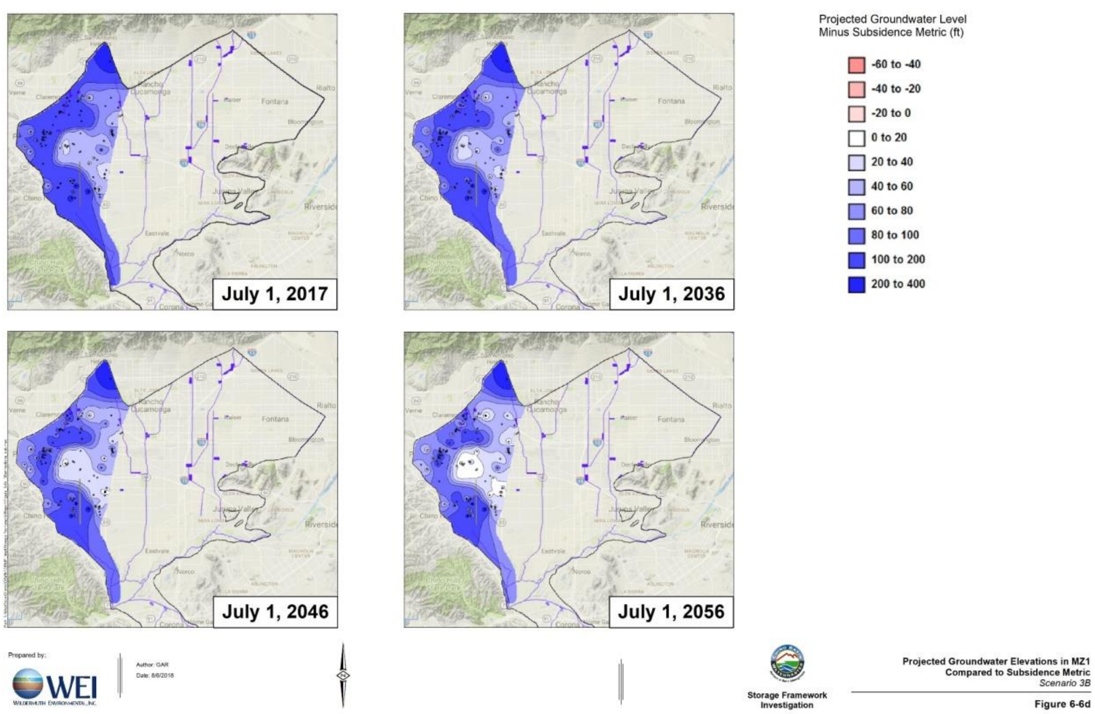


EXHIBIT 4.7-18
SCENARIO 4A

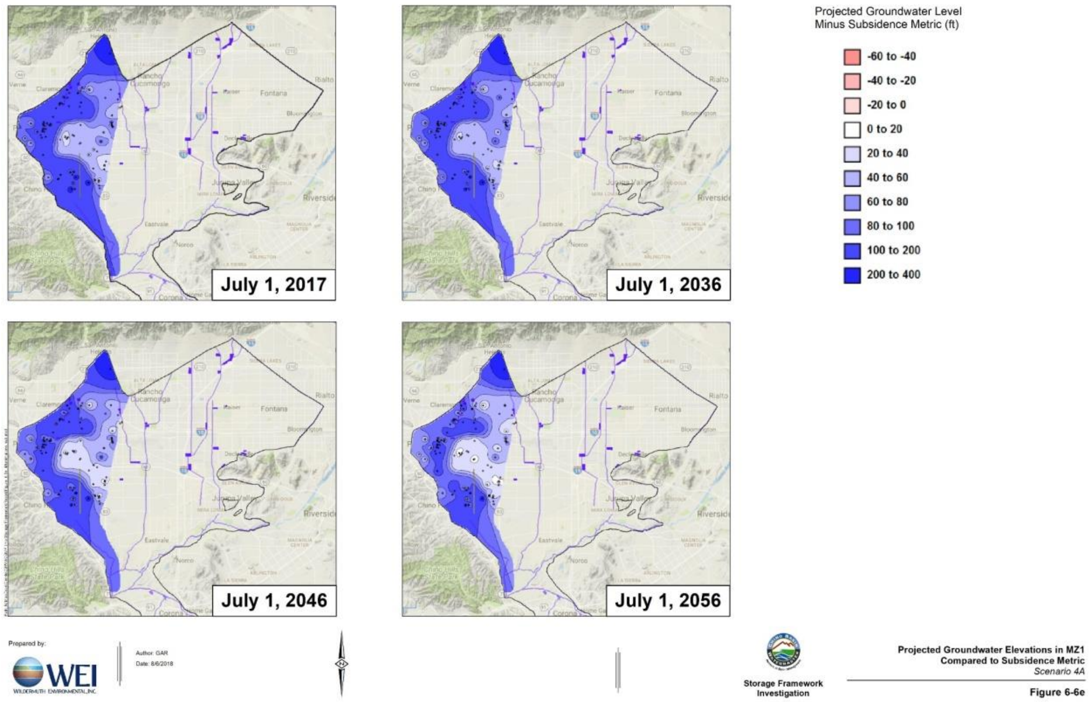
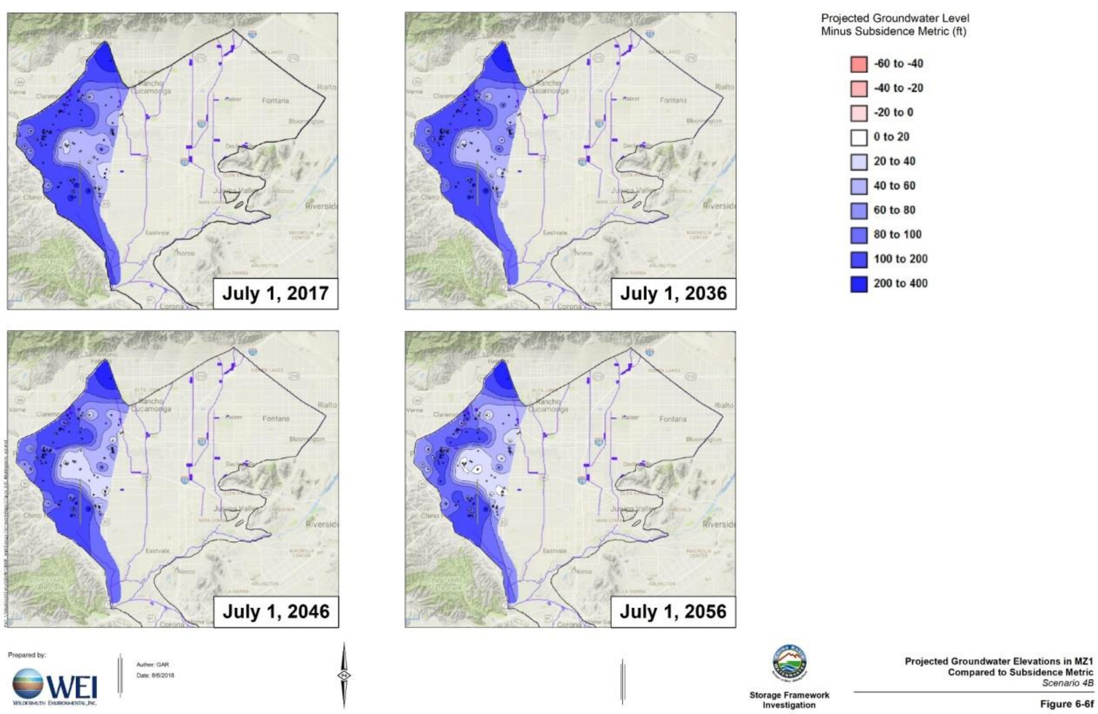


EXHIBIT 4.7-19
SCENARIO 4B



Impact Conclusion

The impacts on new land subsidence may be significant, however mitigation is provided below that will minimize impacts below significance thresholds. This is for the following reasons:

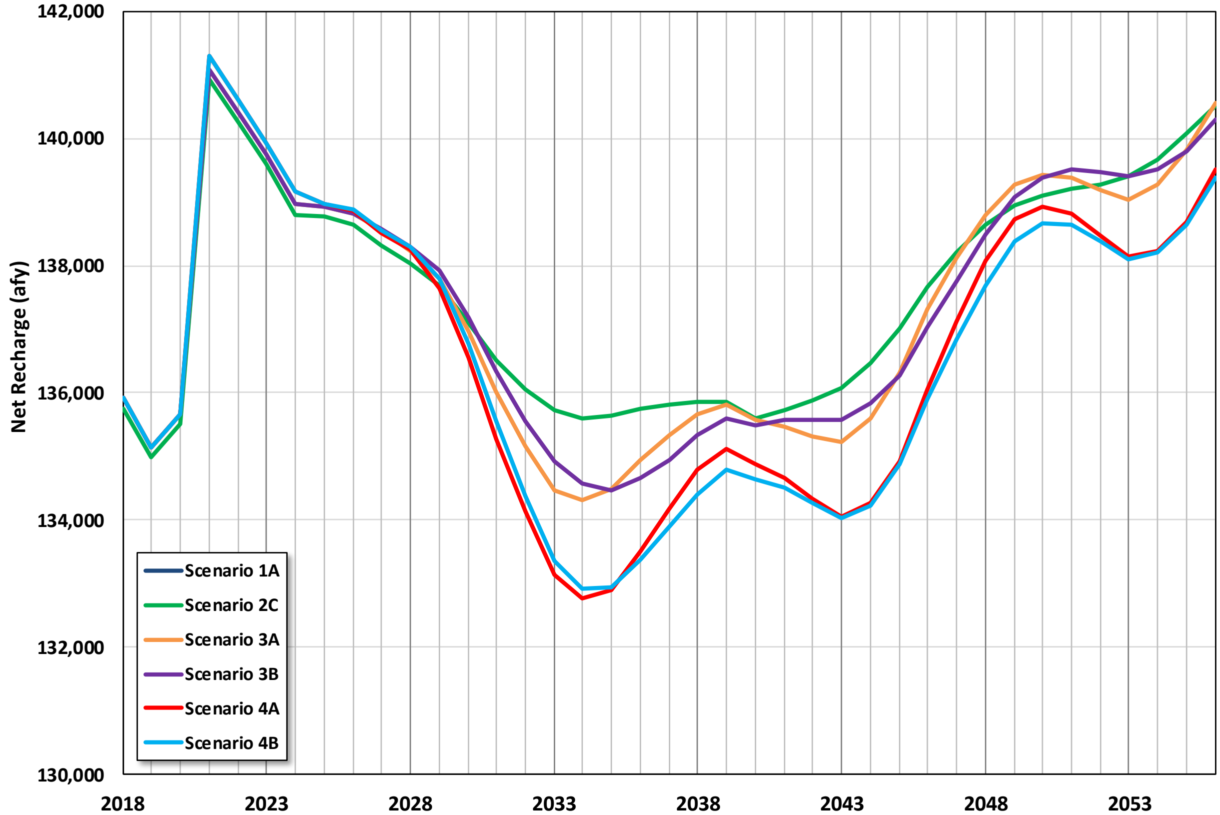
- There is no new land subsidence projected under the Storage and Recovery Program scenarios, if implemented pursuant to the 2020 SMP.
- New land subsidence caused by a Storage and Recovery Program is considered MPI under the Peace Agreement. Under the 2020 SMP, and as proposed below, Watermaster will review each Storage and Recovery Program application, estimate the surface and ground water systems response, prepare a report that describes the response and potential MPI, and develop mitigation requirements to mitigate MPI caused by the proposed Storage and Recovery Program. The Storage and Recovery Program applicant will develop mitigation measures pursuant to these requirements and incorporate them into their Storage and Recovery Program application. Upon approval by Watermaster, these mitigation measures will be incorporated into the Storage and Recovery Program storage agreement.
- Watermaster conducts comprehensive groundwater-level and ground-level monitoring under the Peace Agreement and Court orders. The information developed from this monitoring will be used to identify the potential for new land subsidence and to develop mitigation requirements to mitigate for these impacts. Potential mitigation actions include: (1) limiting facilities and operations of the Storage and Recovery Programs to MZ-2 and -3, (2) modifying the put and take cycles to ensure the Storage and Recovery Program does not contribute to the lowering of groundwater-levels below the new land subsidence metric, (4) providing an alternate supply to MZ-1 producers to maintain groundwater-levels above the new land subsidence metric, to the extent that the Storage and Recovery Program operation affect them, (5) a combination of (1) through (4) above, and (6) the implementation of a monitoring program to verify the effectiveness of the mitigation actions. The Project Description contains facilities and their operations that can be used to implement these mitigation actions.

Impacts on Net Recharge due to Changes in Groundwater Levels

Net recharge is net inflow to the basin excluding the direct recharge of Supplemental Water. The expected operating scheme for the parties' managed storage and the Storage and Recovery Programs is to put water into storage and hold it there in advance of a future take. This has the effect of temporarily increasing storage, starting with the first puts and ending when the stored water is completely pumped out. Past modeling work has demonstrated that storing water in the basin for subsequent removal has the effect of reducing net recharge to the basin. Net recharge is a key factor in the calculation of Safe Yield, and therefore a reduction in net recharge will cause a reduction in Safe Yield.

Exhibit 4.7-20 below shows the time series of net recharge for baseline Scenario 1A and Storage and Recovery Program Scenarios 2C through 4B. For all scenarios, the net recharge increases by 5,500 afy in 2021 due to the 2013 RMPU projects coming online. Net recharge in baseline Scenario 1A declines from a maximum of 142,000 afy in 2021 to a minimum of 137,000 afy in 2040. The combination of lower pumping projections and increase in managed storage results in the decline in net recharge. Starting in 2040 the net recharge rises at a nearly constant rate and reaches about 142,000 afy in 2056. The net recharge time series for Scenarios 2C through 4B follow a similar pattern however the net recharge is less due to increases in managed storage.

EXHIBIT 4.7-20
Projected Net Recharge for Storage and Recovery Program Scenarios



The impact of Storage and Recovery Programs on net recharge is summarized in the table below.

TABLE 4.7-3
RELATIONSHIP OF REDUCTION IN NET RECHARGE TO STORAGE SPACE USED FOR STORAGE AND RECOVERY PROGRAM SCENARIOS

	Scenario				
	2C	3A	3B	4A	4B
Maximum Storage Space Used (af)	100,000	200,000	200,000	300,000	300,000
Average Storage Space Used in Each Ten-Year Cycle (af)	65,000	130,000	130,000	195,000	195,000
Average Annual Reduction in Net Recharge (afy)	1,560	1,950	1,920	2,850	2,900
Average Annual Reduction in Net Recharge as a Percentage of Average Annual Storage Space Used	2.41%	1.5%	1.48%	1.46%	1.50%

The reduction in net recharge is estimated to be about 2.4 percent of the average amount of water in storage for each ten-year cycle for Scenario 2C, and it's about 1.5 percent for Scenarios 3A through 4B. The greater relative reduction in net recharge in Scenario 2C is due to the spatial asymmetry of the puts and takes, leading to poorer recovery of the stored water.

<u>Impact Conclusion</u>
The impacts on net recharge may be significant, however mitigation is provided below that will minimize impacts below significance thresholds. This is for the following reasons:

- Reduction in net recharge caused by a Storage and Recovery Program is an adverse impact that must be mitigated. Under the 2020 SMP, Watermaster will estimate the reduction in net recharge and Safe Yield for each Storage and Recovery Program and deduct it from water stored in each Storage and Recovery Program storage account to compensate for its impact on net recharge and Safe Yield. Watermaster will review these impacts and develop mitigation requirements for the proposed Storage and Recovery Program. The Storage and Recovery Program applicant will develop mitigation measures pursuant to these requirements and incorporate them into their Storage and Recovery Program application. Upon approval by Watermaster, these mitigation measures will be incorporated into the Storage and Recovery Program storage agreement.
- Watermaster conducts comprehensive monitoring (under the Peace Agreement and Court orders) and modeling to estimate net recharge of the Chino Basin. The information developed from these efforts will be used to identify potential and actual losses of net recharge and to develop mitigation requirements to mitigate for these impacts. Potential mitigation actions include: (1) modifying the put and take cycles to minimize reductions in net recharge, (2) deducting the reduction in net recharge from its Storage and Recovery account, (3) recharge additional water to mitigate reductions in net recharge, (4) construct facilities in the southern part of the basin to eliminate the reduction of net recharge due to Storage and Recovery Programs, (5) a combination of (1) through (4), and (6) the implementation of a monitoring program to verify the effectiveness of the mitigation actions. The Project Description contains facilities and their operations that can be used to implement these mitigation actions.

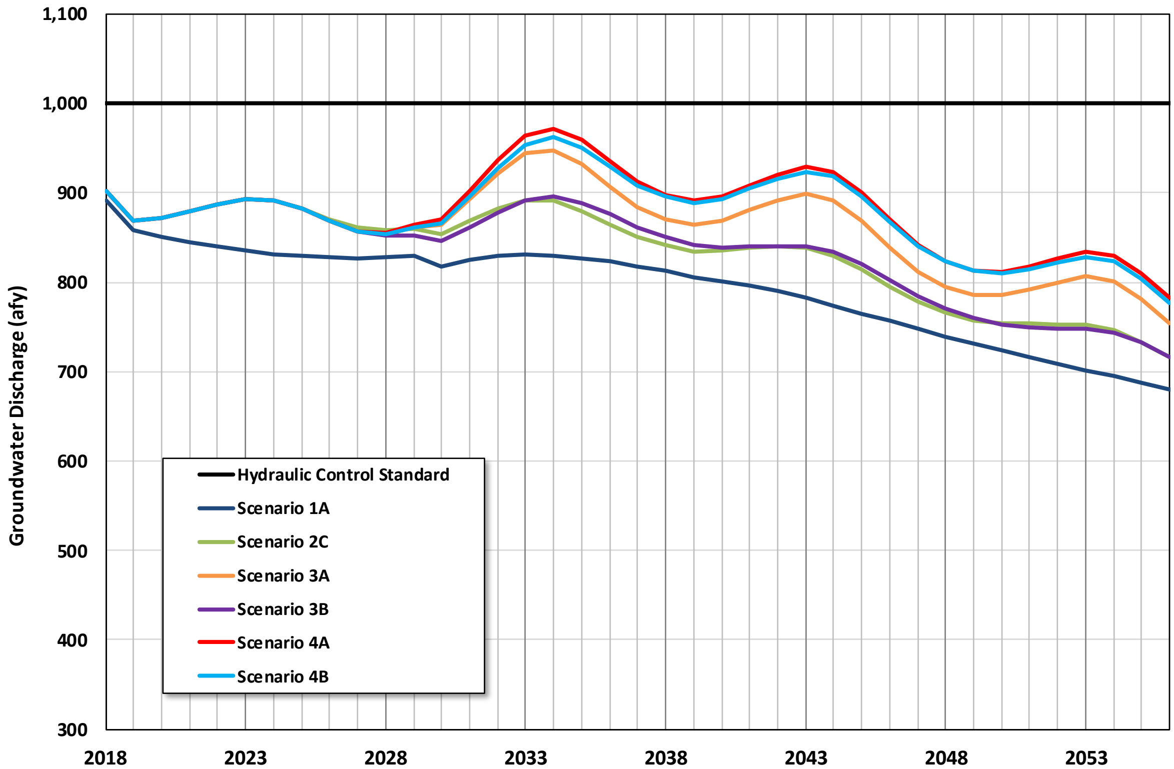
Impacts on Hydraulic Control due to Changes in Groundwater Levels
The attainment of Hydraulic Control is measured by demonstrating, from groundwater elevation data, either that all groundwater north of the desalter well fields cannot pass through the desalter well fields (total hydraulic containment standard) or that groundwater discharge through the desalter well fields is, in aggregate, less than 1,000 afy (de minimis Hydraulic Control standard). The Regional Board has agreed that compliance with the Hydraulic Control standard will be determined from the results of periodic calibrations and applications of the Watermaster's Chino Basin groundwater model and interpretations of the model results.

The achievement of Hydraulic Control required the expansion of the Chino desalter program to 40,000 afy and the reduction in storage in the basin by 400,000 af. Hydraulic Control was recently achieved when the subsurface discharge through the Chino Creek well field, a part of the Chino desalter facilities, was reduced to less than 1,000 afy. Increasing storage in the basin will have the effect of increasing the subsurface discharge through the CCWF, potentially causing a loss of Hydraulic Control. The loss of Hydraulic Control could have significant economic adverse impacts to the parties if required to mitigate past TDS and nitrate loading to the Chino Basin in excess of the antidegradation objectives from recycled water reuse for all recycled water used back to 2004 and all future recycled water reuse.

Model simulations of baseline Scenario 1A and Storage and Recovery Program Scenarios 2C through 4B indicated complete Hydraulic Control in the CDA well field area running from the Jurupa Hills in the east to Chino Desalter well I-4 in the west for the projection period of 2018 through 2056.

The area between Chino Desalter well I-4 and the Chino Hills includes the CCWF, which produces water to supply the CDA. Exhibit 4.7-21 below shows time series of the projected groundwater discharge through the CCWF for baseline Scenario 1A and Storage and Recovery Program Scenarios 2C through 4B and the de minimis Hydraulic Control standard of 1,000 afy. The groundwater discharge through the CCWF is projected to be less than 1,000 afy for all Storage and Recovery Program scenarios. And, all scenarios are projected to maintain Hydraulic Control through 2056. That said, the margin between the Hydraulic Control standard and projected groundwater discharge is substantially reduced with the increasing use of storage.

EXHIBIT 4.7-21
Projected Groundwater Discharge from Chino North Management Zone through the Chino Creek Well Field for Storage and Recovery Program Scenarios



In baseline Scenario 1A, groundwater discharge through the CCWF gradually decreases from about 890 afy in 2018 to about 720 afy in 2056, and this decline occurs even with the buildup in managed storage by the parties through 2030. In contrast, the groundwater discharge through the CCWF for Storage and Recovery Program Scenarios 2C through 4B follows a cyclic pattern with the groundwater discharge through the CCWF approaching the Hydraulic Control standard near the peak of the ten-year storage cycles in the 2030s and 2040s. The margin of safety for the parties for maintaining Hydraulic Control is small and averages about 210 afy in baseline Scenario 1A. This margin could be eroded if CCWF pumping were reduced due to mechanical challenges, treatment plant challenges, or other unforeseen challenges.

The table below summarizes Hydraulic Control compliance.

TABLE 4.7-4
SUMMARY OF COMPLIANCE WITH THE HYDRAULIC CONTROL COMMITMENT IN THE BASIN PLAN (AFY)

	Scenario					
	1A	2C	3A	3B	4A	4B
Hydraulic Control Standard	1,000					
Average Discharge through the CCWF	790	830	860	830	880	880
Difference between the Hydraulic Control Standard and Average Discharge through the CCWF	210	170	140	170	120	120
Maximum Discharge through the CCWF	890	900	950	900	970	960
Difference between the Hydraulic Control Standard and Maximum Discharge through the CCWF	110	100	50	100	30	40

<u>Impact Conclusion</u>
The impacts on hydraulic control may be significant, however mitigation is provided below that will minimize impacts below significance thresholds. This is for the following reasons:

- Loss of Hydraulic Control caused by a Storage and Recovery Program is considered an adverse impact that must be mitigated. Under the 2020 SMP, Watermaster will estimate the projected impacts that each Storage and Recovery Program may have on Hydraulic Control. Watermaster will review these impacts and develop mitigation requirements for the proposed Storage and Recovery Program. The Storage and Recovery Program applicant will develop mitigation measures pursuant to these requirements and incorporate them into their Storage and Recovery Program application. Upon approval by Watermaster, these mitigation measures will be incorporated into the Storage and Recovery Program storage agreement.
- Watermaster conducts comprehensive monitoring (under the Peace Agreement and Court orders) and modeling to assess the state of Hydraulic Control in the Chino Basin. The information developed from these efforts will be used to estimate groundwater outflow from Chino North to the Santa Ana River, assess the state of Hydraulic Control, determine if the Storage and Recovery Program will cause a loss of hydraulic control, and develop mitigation requirements to mitigate for impacts to the state of Hydraulic Control. Potential mitigation actions include: (1) modifying the put and take cycles to minimize discharges to the Santa Ana River and maintain Hydraulic Control, (2) construct facilities in the southern part of the basin to minimize discharges to the Santa Ana River and maintain Hydraulic Control, (3) a combination of (1) and (2), and (4) the implementation of a monitoring program to verify the effectiveness of the mitigation actions. The Project Description contains facilities and their operations that can be used to implement these mitigation actions.

Impacts on Groundwater Quality

Under the 2018 SFI, eight VOC plumes were evaluated: the Pomona area, GE Flat Iron, CIM, Chino Airport, South Archibald, Milliken Landfill, and Stringfellow plumes. The two inorganic plumes include the Kaiser TDS and the Stringfellow perchlorate plumes.

Figures 4.7-16 and 4.7-17 show the initial locations of the plumes and their estimated locations in June 2036 and June 2056, respectively. These maps show the projected boundary of the VOC plumes with concentrations greater than the 5 µgl MCL as estimated by the MT3D model.

Future projections of the Stringfellow TCE and perchlorate plumes were not made because the Model does not currently include the hydrogeologic resolution to make a reasonable projection of their movements. Future projections of the Kaiser TDS plume were not made because its location is not well known nor is the spatial distribution of the TDS concentration within it.

These simulations are not definitive assessments of the fate of these plumes. The precise movement of these plumes is controlled by the localized heterogeneities that are not represented in the Model. The best use of the solute modeling results described herein is to show how Storage and Recovery Programs could affect the movement of the plumes relative to baseline Scenario 1A. The projected locations of the plumes are shown in outline form for each scenario and indicate the limits of the projected plume with a VOC concentration greater than 5 µgl. The simulation results are summarized below.

- Pomona area TCE Plume. The TCE concentration in the Pomona area TCE plume is projected to fall below 5 µgl by 2036 through contaminant removal from groundwater pumping, dispersion, and natural degradation. This occurs for all scenarios. Future Storage and Recovery Programs resembling those investigated in the Scenarios 2C through 4B are projected to have no effect on the Pomona area TCE plume movement.
- CIM PCE Plume. The PCE concentration in the CIM PCE plume is projected to fall below 5 µgl by 2036 through dispersion and natural degradation. This occurs for all scenarios. Future Storage and Recovery Programs resembling those investigated in the Scenarios 2C through 4B are projected to have no effect on CIM PCE plume movement.
- GE Flat Iron Plume. The Exhibits show the projected movement of the GE TCE plume in 2036, caused by projected GE Flatiron plume remediation activities and projected management of the basin. The plume is projected to move 0.75 miles mile south and spread to the west about half a mile. The projected plume paths are virtually identical for Scenarios 1A, 2C, 3B, and 4B. They also show the projected movement of the GE TCE plume in 2056. In Scenario 1A, the southerly leading edge of the plume appears to not move significantly south after 2036, and the plume is projected to spread to the west. Under Storage and Recovery Program Scenarios 2C, 3B, and 4B, the southerly leading edge is projected to be about 1.25 miles south of its initial position in 2017 and spreading to the west as with Scenario 1A. Future Storage and Recovery Programs resembling those investigated in the Scenarios 2C through 4B are projected to affect GE TCE plume movement and possibly at least one City of Chino well.
- Chino Airport Plume. The Exhibits show the projected location of the Chino Airport TCE plume under the assumption that no remediation plan is implemented in 2036 and 2056, respectively. As of this writing, the final remediation plan for this plume has not been decided. The plume is projected to move to the southeast in the absence of a remediation plan. The projected plume paths are virtually identical for Scenarios 1A, 2C, 3B, and 4B. Future Storage and Recovery Programs resembling those inves-

tigated in the Scenarios 2C through 4B are projected to have no effect on Chino Airport plume movement.

- GE Test Cell Plume. The Exhibits show the projected location of the GE Test Cell TCE plume in 2036 and 2056, respectively. The plume is projected to move south wrapping itself around a groundwater mound centered on the Ely Basins recharge facility. The projected plume paths are virtually identical for Scenarios 1A, 2C, 3B, and 4B with the exception that the southerly leading edge of the plume is about 0.3 miles further south for Scenario 4B. Future Storage and Recovery Programs resembling those investigated in Scenarios 2C through 4B are projected to have an effect on GE Test Cell TCE plume movement.
- South Archibald Plume. The Exhibits show the projected location of the South Archibald TCE plume in 2036 and 2056, respectively. The projected plume paths are virtually identical for Scenarios 1A, 2C, 3B, and 4B through 2036, and the TCE concentration of this plume is projected to fall below 5 µgl by 2056 through contaminant removal from groundwater pumping, dispersion, and natural degradation. Future Storage and Recovery Programs resembling those investigated in Scenarios 2C through 4B are projected to have no effect on South Archibald plume movement.
- Milliken Landfill Plume. The TCE concentration in the Milliken Landfill plume is projected to fall below 5 µgl by 2036 through contaminant removal from dispersion, and natural degradation. This occurs for all scenarios. Future Storage and Recovery Programs resembling those investigated in Scenarios 2C through 4B are projected to have no effect on Milliken Landfill plume movement.

<u>Impact Conclusion</u>

The impacts on groundwater quality may be significant, however mitigation is provided below that will minimize impacts below significance thresholds. This is for the following reasons:

- Water quality degradation caused by a Storage and Recovery Program is considered an MPI under the Peace Agreement. Under the 2020 SMP, Watermaster will review each Storage and Recovery Program application, estimate the surface and ground water systems response, prepare a report that describes the response and potential MPI, and develop mitigation requirements to mitigate MPI caused by the proposed Storage and Recovery Program. The Storage and Recovery Program applicant will develop mitigation measures pursuant to these requirements and incorporate them into their Storage and Recovery Program application. Upon approval by Watermaster, these mitigation measures will be incorporated into the Storage and Recovery Program storage agreement.
- Watermaster conducts comprehensive groundwater-quality monitoring pursuant to the Peace Agreement and Court orders and modeling to assess status and projected movement of plumes in the Chino Basin. The information developed from these efforts will be used to identify changes in the direction and velocity for each plume that can be attributed to a Storage and Recovery Program that may impact its remediation or the water quality at wells. And, to develop mitigation requirements to mitigate for any impacts related to the change in direction or velocity attributed to a Storage and Recovery Program. Potential mitigation actions include: (1) modifying the put and take cycles to minimize changes in the plume's direction and velocity that may impact remediation, (2) constructing facility improvements to mitigate impacts on existing remediation, or (3) a combination of (1) and 2, and (4) the implementation of a monitoring program to verify the effectiveness of the mitigation actions. The Project Description contains facilities and their operations that can be used to implement these mitigation actions.

Summary of Impacts to Groundwater from OBMPU Implementation

The table below summarizes the impacts to the basin from the use of storage by future Storage and Recovery Program scenarios.

TABLE 4.7-4
SUMMARY OF CONCLUSIONS FOR OPERATIONAL BANDS 2, 3, AND 4, AND SCENARIOS 2, 3 AND 4

	Scenario				
	2C[1]	**3A**	**3B**	**4A**	**4B**
Operational Bands	2	2 and 3		2, 3, and 4	
Range in Managed Storage Used for Storage and Recovery Programs	700,000 to 800,000 af	700,000 to 900,000 af		700,000 to 1,000,000 af	
New Land Subsidence	None				
Pumping Sustainability	No new pumping sustainability challenges	Potential new pumping sustainability challenges			
Average Annual Reduction in Net Recharge as a Percentage of Average Annual Storage Space Used	2.41%	1.5%	1.48%	1.46%	1.50%
Hydraulic Control	Maintained	Maintained; however, the groundwater discharge through the CCWF is projected to increase and approach the Hydraulic Control standard.			
Contaminant Plumes	Potential MPI related to GE Flat Iron and Test Cell plumes				

[1] The annual reduction in net recharge for Scenarios 2A and 2B was estimated to be 2.41 percent. This loss in net recharge was mitigated in Scenario 2C by reducing the takes by the net recharge reduction. This type of mitigation may help maintain pumping sustainability in Scenario 2C. This mitigation was not included in Scenarios 3A, 3B, 4A, and 4B, and may contribute to the pumping sustainability challenges identified for these scenarios.

The groundwater level impacts are spatially varying, and they are embedded in the impact assessment for new land subsidence and pumping sustainability.

The Storage and Recovery Program scenarios analyzed herein will cause a reduction in storage if the storage-induced reduction in net recharge is not accounted for. As mentioned earlier, one way to mitigate the storage program induced reduction in net recharge is to reduce the takes by the amount of reduced net recharge. Not addressing the storage program induced reduction in net recharge will reduce the Safe Yield allocated to the Appropriative Pool parties, cause overdraft, or both, and will cause pumping sustainability challenges.

Storage and Recovery Program Scenarios 2C, 3B, and 4B are projected to affect the direction and speed of the GE Flat Iron and Test Cell plumes.

Watermaster will periodically review current and projected basin conditions, compare this information to the projected basin conditions assumed in the evaluation of the Storage and Recovery Program application process, compare the projected Storage and Recovery Program operations to actual Storage and Recovery Program operations. Watermaster will then make findings regarding the efficacy of the mitigation program and requirements required herein and by the Storage and Recovery Program storage agreements. Based on Watermaster's review and subsequent findings, where applicable, Watermaster will then require changes and/or modifications in the Storage and Recover Program storage agreements that would adequately mitigate MPI and related adverse impacts.

Based on this information, the Project does not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such the project may impede sustainable groundwater management of the basin.

Level of Significance Before Mitigation: Potentially Significant

Mitigation Measures:

HYD-1: ***Watermaster shall review each Storage and Recovery Program application, and estimate the surface and ground water systems response (estimate the potential for loss of pumping sustainability). Watermaster shall then prepare a report that describes the response and potential MPI to the Chino Basin, and shall develop mitigation requirements to mitigate MPI caused by the proposed Storage and Recovery Program. The Storage and Recovery Program Applicant (Implementing Agency) will develop mitigation measures pursuant to these requirements established by the Watermaster; these measures shall be incorporated into their Storage and Recovery Program application. Upon approval by Watermaster, these mitigation measures will be incorporated into the Storage and Recovery Program storage agreement. Applications that do not adequately mitigate the potential for loss of pumping sustainability, which will be determined by the Watermaster, shall not be accepted and therefore will not be developed.***

HYD-2: ***The data gathered through Watermaster's comprehensive groundwater-level monitoring shall be used to identify potential impacts on pumping sustainability and to develop mitigation requirements to mitigate for these impacts. Potential mitigation includes, but is not limited to: (1) modifying the put and take cycles to minimize impacts to pumping sustainability, (2) strategically increasing supplemental water recharge to mitigate loss of pumping sustainability, (3) modifying a party's affected well (lowering pump bowls), (4) providing an alternate supply to the affected party to ensure it can meet its demands, (5) a combination of (1) through (4), and (6) the implementation of a monitoring program to verify the effectiveness of the mitigation actions. The operation of certain facilities proposed as part of the OBMPU can be used to implement these mitigation actions.***

HYD-3: ***Watermaster shall review each Storage and Recovery Program application, and estimate the surface and ground water systems response (estimate the potential for new land subsidence). Watermaster shall then prepare a report that describes the response and potential MPI to the Chino Basin, and shall develop mitigation requirements to mitigate MPI caused by the proposed Storage and Recovery Program. The Storage and Recovery Program Applicant (Implementing Agency) will develop mitigation measures pursuant to these requirements established by the Watermaster; these measures shall be incorporated into their Storage and Recovery Program application. Upon approval by Watermaster, these mitigation measures will be incorporated into the Storage and Recovery Program storage agreement. Applications that do not adequately mitigate the potential for new land subsidence, which will be determined by the Watermaster, shall not be accepted and therefore will not be developed.***

HYD-4: ***The data gathered through Watermaster's comprehensive groundwater-level and ground-level monitoring shall be used to identify the potential for new land subsidence and to develop mitigation requirements to mitigate for these impacts. Potential mitigation includes, but is not limited to: (1) limiting facilities and operations of the Storage and Recovery Programs to MZ-2 and -3, (2) modifying the put and take cycles to ensure the Storage and Recovery Program does not contribute to the lowering of groundwater-levels below the new land subsidence metric, (4) providing an alternate supply to MZ-1 producers to maintain groundwater-levels above the new land subsidence metric, to the extent that the Storage and Recovery Program operation affect them, (5) a combination of (1) through (4) above, and (6) the implementation of a monitoring program to verify the effectiveness of the mitigation actions. The operation of certain facilities proposed as part of the OBMPU can be used to implement these mitigation actions.***

HYD-5: ***Watermaster shall estimate the reduction in net recharge and Safe Yield for each Storage and Recovery Program/Project and deduct it from water stored in each Storage and Recovery Program storage account, which will compensate for its impact on net recharge and Safe Yield. Watermaster shall review these impacts and develop mitigation requirements for the proposed Storage and Recovery Program. The Storage and Recovery Program Applicant (Implementing Agency) will develop mitigation measures pursuant to the requirements established by Watermaster; these measures shall be incorporated into the Applicant's Storage and Recovery Program application. Upon approval by Watermaster, these mitigation measures shall be incorporated into the Storage and Recovery Program storage agreement. Applications that do not adequately mitigate adverse impacts on net recharge and Safe Yield, which will be determined by Watermaster, shall not be accepted and therefore will not be developed.***

HYD-6: ***Watermaster's comprehensive monitoring and modeling that estimates net recharge of the Chino Basin shall be used to identify potential and actual losses of net recharge and to develop mitigation requirements to mitigate impacts thereof. Potential mitigation includes, but is not limited to: (1) modifying the put and take cycles to minimize reductions in net recharge, (2) deducting the reduction in net recharge from its Storage and Recovery account, (3) recharge additional water to mitigate reductions in net recharge, (4) construct facilities in the southern part of the basin to eliminate the reduction of net recharge due to Storage and Recovery Programs, (5) a combination of (1) through (4), and (6) the implementation of a monitoring program to verify the effectiveness of the mitigation actions. The operation of certain facilities proposed as part of the OBMPU can be used to implement these mitigation actions.***

HYD-7: ***Watermaster shall estimate the projected impacts that each Storage and Recovery Program may have on Hydraulic Control and review these impacts and develop mitigation requirements for the proposed Storage and Recovery Program. The Storage and Recovery Program Applicant (Implementing Agency) will develop mitigation measures pursuant to the requirements established by Watermaster; these measures shall be incorporated into the Applicant's Storage and Recovery Program application. Upon approval by Watermaster, these mitigation measures shall be incorporated into the Storage and Recovery Program storage agreement. Applications that do not adequately mitigate adverse impacts on hydraulic control, which will be***

determined by Watermaster, shall not be accepted and therefore will not be developed.

HYD-8: ***Watermaster's comprehensive monitoring and modeling that assesses the state of Hydraulic Control in Chino Basin shall be used to estimate groundwater outflow from Chino North to the Santa Ana River, assess the state of Hydraulic Control, determine if the Storage and Recovery Program will cause a loss of hydraulic control, and develop mitigation requirements to mitigate for impacts to the state of Hydraulic Control. Potential mitigation includes, but is not limited to: (1) modifying the put and take cycles to minimize discharges to the Santa Ana River and maintain Hydraulic Control, (2) construct facilities in the southern part of the basin to minimize discharges to the Santa Ana River and maintain Hydraulic Control, (3) a combination of (1) and (2), and (4) the implementation of a monitoring program to verify the effectiveness of the mitigation actions. The Project Description contains facilities and their operations that can be used to implement these mitigation actions. The operation of certain facilities proposed as part of the OBMPU can be used to implement these mitigation actions.***

HYD-9: ***Watermaster shall review each Storage and Recovery Program application, and estimate the surface and ground water systems response (estimate the potential for water quality degradation). Watermaster shall then prepare a report that describes the response and potential MPI to the Chino Basin, and shall develop mitigation requirements to mitigate MPI caused by the proposed Storage and Recovery Program. The Storage and Recovery Program Applicant (Implementing Agency) will develop mitigation measures pursuant to these requirements established by the Watermaster; these measures shall be incorporated into their Storage and Recovery Program application. Upon approval by Watermaster, these mitigation measures will be incorporated into the Storage and Recovery Program storage agreement. Applications that do not adequately mitigate the potential for water quality degradation, which will be determined by the Watermaster, shall not be accepted and therefore will not be developed.***

HYD-10: ***The data gathered through Watermaster's comprehensive groundwater-quality monitoring shall be used to identify changes in the direction and velocity for each plume that can be attributed to a Storage and Recovery Program that may impact its remediation or the water quality at wells, and to develop mitigation requirements to mitigate for any impacts related to the change in direction or velocity attributed to a Storage and Recovery Program. Potential mitigation includes, but is not limited to: (1) modifying the put and take cycles to minimize changes in the plume's direction and velocity that may impact remediation, (2) constructing facility improvements to mitigate impacts on existing remediation, or (3) a combination of (1) and 2, and (4) the implementation of a monitoring program to verify the effectiveness of the mitigation actions. The operation of certain facilities proposed as part of the OBMPU can be used to implement these mitigation actions.***

HYD-11: ***Watermaster shall periodically review current and projected Basin conditions and shall compare this information to the projected basin conditions assumed in the evaluation of the Storage and Recovery Program application process, compare the projected Storage and Recovery Program operations to actual Storage and Recovery Program operations. The Watermaster shall then make findings regarding the efficacy of the mitigation program and requirements required herein and by the Storage and Recovery Program storage***

agreements. Based on Watermaster's review and subsequent findings, where applicable, Watermaster shall require changes and/or modifications in the Storage and Recover Program storage agreements that will adequately mitigate MPI and related adverse impacts. The Watermaster shall continue to determine what Programs and Projects should be implemented or should be rejected based on their potential to contribute to or cause MPI or other adverse impacts to the Basin.

Note this document acknowledges that monitoring is not mitigation in and of itself, but it is essential to the Watermaster's mitigation process because it identifies the potential for a significant impact. Data indicating a significant impact may be evolving will allow Watermaster to initiate any of the mitigation measures outlined above that can reduce or eliminate the potential impact identified through monitoring. The text below identifies how this can be accomplished.

Level of Significance After Mitigation: Less Than Significant

Pumping Sustainability

Mitigation measures **HYD-1** and **HYD-2** address impacts related to pumping sustainability in the Chino Basin; these measures would ensure that Watermaster gathers the appropriate data to (1) determine whether future OBMPU projects would result in loss of pumping sustainability, and (2) respond with appropriate mitigation to minimize the potential loss of pumping sustainability that may occur from a Project or, where mitigation is not feasible, reject the Project. These measures would enable the Watermaster to prevent adverse impacts related to pumping sustainability that may result from implementation of future OBMPU Projects.

Subsidence

Mitigation measures **HYD-3** and **HYD-4** address potential new subsidence within the Chino Basin; these measures would ensure that Watermaster gathers the appropriate data to respond (1) determine whether future OBMPU projects would result in new subsidence, and (2) respond with appropriate mitigation to minimize the potential for new subsidence that may occur from a Project or, where mitigation is not feasible, reject the Project. These measures would enable the Watermaster to prevent adverse impacts related to new subsidence that may result from implementation of future OBMPU Projects.

Net Recharge and Safe Yield

Mitigation measures **HYD-5** and **HYD-6** address potential reduction in net recharge and impacts to Safe Yield within the Chino Basin; these measures would ensure that Watermaster gathers the appropriate data to (1) determine whether future OBMPU projects would result in potential reduction in net recharge and impacts to Safe Yield, and (2) respond with appropriate mitigation to minimize the potential for a reduction in net recharge and for impacts to Safe Yield that may occur from a Project or, where mitigation is not feasible, reject the Project. These measures would enable the Watermaster to prevent adverse impacts related to potential reduction in net recharge and impacts to Safe Yield that may result from implementation of future OBMPU Projects.

Hydraulic Control

Mitigation measures **HYD-7** and **HYD-8** address potential adverse impacts to Hydraulic Control of the Chino Basin; these measures would ensure that Watermaster gathers the appropriate data to (1) determine whether future OBMPU projects would result in potential adverse impacts to Hydraulic Control, and (2) respond with appropriate mitigation to minimize potential adverse impacts to Hydraulic Control that may occur from a Project or, where mitigation is not feasible, reject the Project. These measures would enable the Watermaster to prevent adverse impacts to Hydraulic Control that may result from implementation of future OBMPU Projects.

Water Quality

Mitigation measures **HYD-9** and **HYD-10** address potential degradation of water quality within the Chino Basin; these measures would ensure that Watermaster gathers the appropriate data to (1) determine whether future OBMPU projects would result in potential degradation of water quality, and (2) respond with appropriate mitigation to minimize potential degradation of water quality that may occur from a Project or, where mitigation is not feasible, reject the Project. These measures would enable the Watermaster to prevent potential degradation of water quality that may result from implementation of future OBMPU Projects.

General Impacts to Groundwater from OBMPU Implementation

Mitigation measure **HYD-11** addresses the plan of response by Watermaster should the Basin conditions come to vary from the projections that have been modeled as part of the OBMPU (and all supporting documentation). This measure would enable Watermaster to modify previously agreed upon mitigation measures to address actual basin conditions and apply these measures to OBMPU projects that have obtained storage agreements and to future OBMPU projects. This allows for flexibility in how Watermaster approaches minimizing the groundwater issues outlined herein to below significance levels. Furthermore, Watermaster is able to accept or reject projects based on a Project's ability to avoid the basin constraints outlined herein, which will ultimately minimize impacts related to groundwater from implementation of the OBMPU to below significance thresholds.

Cumulative Impact Analysis

Level of Significance Before Mitigation: Potentially Significant

In a way, the projects proposed as part of the OBMPU represent a way in which to cumulatively manage the Chino Basin and the manner of interface with the remainder of the Santa Ana River watershed. Watermaster was established to administer the Judgement, which adjudicated the groundwater rights of the Chino Basin, and as such the Watermaster manages the cumulative changes to the Chino Basin, such as those that may occur from implementation of the OBMPU. Mitigation Measures **HYD-1** through **HYD-11** require Watermaster to continue monitoring efforts to manage the Chino Basin, and to respond to the data gathered through these monitoring efforts with mitigation that would protect MPI and other constraints from occurring to the Chino Basin. As such, with implementation of the above mitigation, Watermaster would be able to respond to any cumulative adverse changes in the Basin with mitigation that would minimize impacts to the Basin. Therefore, implementation of the OBMPU would have a less than significant potential to cumulatively decrease groundwater supplies or interfere substantially with groundwater recharge such the project may impede sustainable groundwater management of the basin.

Level of Significance After Mitigation: Less Than Significant

c(i). Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation onsite or offsite?

Project Category 1: Well Development and Monitoring Devices (PEs 1-9)

This Project Category includes the development of ASR, injection, pumping, groundwater level monitoring, and groundwater quality wells, associated well housing, as well as monitoring devices such as flow meters and extensometers. The proposed wells and monitoring devices will be installed throughout the Chino Basin. This Project Category also includes the closure of abandoned wells

The proposed wells could alter the existing drainage patterns at each project site. It is not known whether the wells will be installed within developed sites or within sites that are vacant and undeveloped. However, given the small area (less than one half acre) within which the proposed wells will be installed, it is not anticipated that substantial changes in drainage would occur. The construction of proposed facilities would require activities such as pavement breaking, ditching, drilling, excavation and demolition, which would temporarily alter each site's existing ground surface and drainage patterns. Compliance with the construction general permit (CGP), Stormwater Pollution Prevention Plan (SWPPP), or San Bernardino and Riverside Counties MS4 Permits where applicable would be required. However, given the small size area in which the wells would be developed, mitigation to enforce best management practices (BMPs) is provided below to minimize impacts at sites that are less than an acre and are therefore not subject to the CGP or SWPPP. Each of these permits and plans would require the implementation of BMPs that manage overland runoff from construction sites and establish permanent drainage pathways to stabilized outlets.

With implementation of such BMPs and compliance with conditions of required permits governing storm water runoff from construction sites, potential onsite and offsite erosion would be reduced to less than significant levels and discharges from construction sites would not exceed the capacity of existing storm water drainage systems. Additionally, the closure of abandoned well sites would require mitigation to address potential erosion and siltation within areas that have been disturbed. The extensometers will be located within wells and therefore would not result in any greater impacts than those outlined above with the exception of the potential for ground disturbance in the areas surrounding existing wells proposed to include monitoring devices, should any be required as part of the OBMPU. Mitigation is required to minimize the potential for erosion as a result of ground disturbance associated with installation and maintenance of proposed monitoring equipment on existing wells.

The installation of monitoring devices—flow meters—within surface water would have a minor potential to alter the course of a stream or river; however, these devices are small and their presence within surface water would not substantially alter the course of a stream or river, or substantially alter drainage patterns as a result. These devices do not require substantial ground disturbance to install, and would be innocuous once installed—the presence of these devices would be akin to the addition of a medium sized rock (less than a cubic yard in size) to the surface water within which it is placed. As such, the installation of flow meters would have a less than significant potential to substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation onsite or offsite.

During operation of the proposed wells, the presence of new facilities at each project site and changes in the extent of permeable or impermeable surfaces could alter the direction and volume of overland flows during both wet and dry periods. Operation of the proposed wells would require mitigation to minimize the potential for these changes.

Project Category 2: Conveyance Facilities and Ancillary Facilities (PEs 2, 4-9)
This category includes the construction of up to 550,000 LF of new pipelines over 30 years, booster pump stations, reservoirs, and minor appurtenances. The proposed conveyance facilities and ancillary facilities would be implemented throughout the entire Chino Basin.

Impacts would be the same as those identified under Project Category 1; however, it is anticipated that the majority of the facilities proposed as part of Project Category 2 would be more than one acre in size and as such would be subject to a CGP or SWPPP for development of each individual project. Mitigation to address implementation of a drainage management plan or otherwise retain runoff onsite for each project is required to reduce impacts to a level of less than significant. Development of conveyance facilities within roadways would result in minimal changes in the roadway drainage pattern once installed as the roadways will be returned to their original or better condition.

Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands (PEs 2, 4-5, 8/9)
This Project Category includes the construction of up to 310 acres of new storage basins—several locations for which are within existing facilities, improvements to existing storage basin(s), 200 acres of flood MAR facilities, new MS4-compliance facilities, and expansion of the maximum storage space (safe storage capacity) to be used within the Chino Basin from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af between this range of storage. The specific locations of the storage basins are described in the Project Description; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

Impacts would be the same as those identified under Project Category 1 and 2. As stated under Project Category 2, it is anticipated that the majority of the facilities proposed as part of Project Category 3 would be more than one acre in size and as such would be subject to a CGP or SWPPP for development of each individual project. Mitigation to address implementation of a drainage management plan or otherwise retain runoff onsite for each project is required to reduce impacts to a level of less than significant.

The proposed expansion of the safe storage capacity from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward would not result in any visible above ground impacts beyond those facilities associated with the OBMPU designed to support this expansion as discussed herein. As such, it is not anticipated that this expansion would substantially alter the existing drainage pattern of the Chino Basin, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation onsite or offsite. Impacts related to the facilities that would support this safe storage capacity expansion are discussed throughout this document, and impacts related to the hydrology of the Chino Basin as a result of this expansion are discussed under issue (b) above.

Project Category 4: Desalters and Water Treatment Facilities (PEs 2, 4-9)
The projects proposed under this category are: upgrades at IEUA's existing Treatment Plants (discussed in IEUA's 2017 FMP PEIR), a new advanced water treatment plant (discussed in IEUA's 2017 FMP PEIR), improvements to the WFA Agua de Lejos Treatment Plant, upgrades to the Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities. Seismic impacts

related to the facilities thoroughly analyzed as part of the IEUA's 2017 FMP PEIR will not be analyzed further as part of this SEIR.

Impacts would be the same as those identified under Project Category 1, 2, and 3. As stated under Project Category 2 and 3, it is anticipated that the majority of the facilities proposed as part of Project Category 4 would be more than one acre in size and as such would be subject to a CGP or SWPPP for development of each individual project. Mitigation to address implementation of a drainage management plan or otherwise retain runoff onsite for each project is required to reduce impacts to a level of less than significant. Additionally, as with the mitigation proposed to address ground disturbance associated with installation and maintenance of proposed monitoring equipment on existing wells discussed above under Project Category 1, the same mitigation measure would also minimize the potential for erosion as a result of ground disturbance associated with installation of proposed groundwater treatment at existing well sites.

<u>Combined Project Categories</u>

The majority of the proposed facilities would not alter the course of a stream or river; though the installation of some monitoring devices would be placed within surface water, these devices would not substantially impact the course of a stream or river due to their small size. The construction of proposed facilities would require activities that would temporarily alter each project site's existing ground surface and drainage patterns. Compliance with the CGP, SWPPP, County MS4 Permits, and BMPs enforced through mitigation provided below would minimize all construction impacts to less than significant levels.

The presence of all new facilities at each project site could change permeable and impermeable surfaces and alter the direction and volume of overland flows. As such, mitigation to address implementation of a drainage management plan or otherwise retain runoff onsite for each project is required to reduce potential erosion and siltation impacts to a level of less than significant.

Level of Significance Before Mitigation: Potentially Significant

Mitigation Measures:

HYD-12: ***The Watermaster and/or Implementing Agency and construction contractor(s) shall select best management practices applicable to well development sites and any other OBMPU Projects that are less than one acre in size. BMPs shall include activities on each site to achieve a reduction in pollutants to the maximum extent practicable during the construction of each OBMPU facility, and to control urban runoff after each OBMPU facility is constructed and the well (if approved for operation post well testing) or other OBMPU facility is in operation.***

HYD-13: ***<u>Implementation of a Grading and Drainage Plan</u>. Prior to construction of project facilities, the Watermaster and/or Implementing Agency shall either:***

(1) Within each facility surface runoff shall be collected and retained (for use onsite) or detained and percolated into the ground on the site such that site development results in no net increase in offsite stormwater flows. Detainment shall be achieved through Low Impact Development techniques whenever possible, and shall include techniques that remove the majority of urban storm runoff pollutants, such as petroleum products and sediment. The purpose of this measure is to remove the onsite contribution to cumulative urban storm runoff and ensure the discharge from the sites is treated to reduce contributions of urban

pollutants to downstream flows and to groundwater; or, where it is not possible to eliminate stormwater flows off of a site or where otherwise appropriate, the Watermaster and/or Implementing Agency shall:

(2) Prepare a grading and drainage plan that identifies anticipated changes in flow that would occur on site and minimizes any potential increases in discharge, erosion, or sedimentation potential in accordance with applicable regulations and requirements for the County and/or the City in which the facility would be located. In addition, all new drainage facilities shall be designed in accordance with standards and regulations. The plan shall identify and implement retention basins, best management practices, and other measures to ensure that potential increases in storm water flows and erosion would be minimized, in accordance with local requirements.

HYD-14: To minimize potential ground disturbances associated with installation and maintenance of proposed monitoring equipment on or groundwater treatment at existing wells, the equipment and treatment facilities shall be installed within or along existing disturbed easements or right-of-way or otherwise disturbed areas, including access roads and pipeline or existing utility easements, whenever feasible.

HYD-15: For long-term mitigation of site disturbances at OBMPU facility locations, all areas not covered by structures shall be covered with hardscape (concrete, asphalt, gravel, etc.), native vegetation and/or man-made landscape areas (for example, grass). Revegetated or landscaped areas shall provide sufficient cover to ensure that, after a two-year period, erosion will not occur from concentrated flows (rills, gully, etc.) and sediment transport will be minimal as part of sheet flows. These measures and requirements shall be applied to disturbed areas of abandoned well sites proposed for closure.

Level of Significance After Mitigation: Less Than Significant

Mitigation measure **HYD-12** would require implementation of BMPs for projects of less than one acre in size that would be comparable to the requirements of the CGP and SWPPP, which are required for larger projects.

During project design, overland flows and drainage at each OBMPU project site would be assessed and drainage facilities would be designed such that no net increase in runoff would occur, in accordance with the Riverside and San Bernardino County MS4 Permits. As required by Mitigation Measure **HYD-13**, either surface runoff shall be collected and retained or a grading and drainage plan would be developed during project design and implemented to ensure no increase in offsite discharges would occur and no substantial increase in erosion or sedimentation would occur. Impacts would be less than significant with mitigation.

Mitigation Measure **HYD-14** would require OBMPU projects at existing well sites to remain within disturbed areas wherever feasible to minimize the potential for further ground disturbance at these sites, which may result in substantial siltation or erosion. Mitigation Measure **HYD-15** would require all disturbed areas that are not covered in hardscape or vegetation would be revegetated or landscaped at future OBMPU facility sites to minimize the potential for erosion on- or off-site.

Cumulative Impact Analysis

Level of Significance Before Mitigation: Potentially Significant

Concurrent construction of cumulative development within the Chino Basin area could result in temporary impacts to drainage patterns that may result in erosion or siltation, flooding, or insufficient capacity of drainage systems. All related projects within the service area would be subject to the same federal, State, and local regulations regarding implementation of BMPs under the CGP, SWPPP, and Riverside and San Bernardino Counties MS4 Permits. Therefore, cumulative development would not result in significant impacts related to drainage during construction.

However, cumulative projects could result in significant impacts to local drainage systems after rapid development of structures. The proposed OBMPU projects could result in potentially significant impacts associated with the alteration of drainage patterns that result in erosion or siltation. Since the project could result in potential significant impacts, the project's contribution to cumulative impacts is considered cumulatively considerable, and therefore, would require mitigation as identified above to reduce impacts to a level of less than significant.

Level of Significance After Mitigation: Less Than Significant

c(ii). Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would substantially increase the rate or amount of surface runoff in a manner which would result in flooding onsite or offsite?

Project Category 1: Well Development and Monitoring Devices (PEs 1-9)

This Project Category includes the development of ASR, injection, pumping, groundwater level monitoring, and groundwater quality wells, associated well housing, as well as monitoring devices such as flow meters and extensometers. The proposed wells and monitoring devices will be installed throughout the Chino Basin.

The proposed wells could alter the existing drainage patterns at each project site. It is not known whether the wells will be installed within developed sites or within sites that are vacant and undeveloped. However, given the small area (less than one half acre) within which the proposed wells will be installed, it is not anticipated that substantial changes in drainage would occur. The construction of proposed facilities would require activities such as pavement breaking, ditching, drilling, excavation and demolition, which would temporarily alter each site's existing ground surface and drainage patterns, and could ultimately provide flooding on- or off-site without preventative measures in place. Compliance with the construction general permit (CGP), Stormwater Pollution Prevention Plan (SWPPP), or San Bernardino and Riverside Counties MS4 Permits (Water Quality Management Plan, WQMP) where applicable would be required; these plans would ensure that drainage and stormwater will not substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site.

However, as stated under issue c(i) above, given the small size in which the wells would be developed, mitigation to enforce best management practices (BMPs) is provided below to minimize impacts at sites that are less than an acre and are therefore not subject to the CGP or SWPPP. Each of these permits and plans would require the implementation of BMPs that manage overland runoff from construction sites and establish permanent drainage pathways to stabilized outlets. With implementation of such BMPs, compliance with conditions of required permits governing storm water runoff from construction sites, and retention of runoff on site where possible, the potential for on- or off-site flooding would be reduced to less than significant levels and discharges from construction sites would not exceed the capacity of existing storm water drainage systems. The extensometers will be located within wells and therefore would not result in any greater impacts than those outlined above, while the proposed flow meters are small devices that will be installed within surface water and would not have a potential to alter the course alter the course of a stream or river such that substantial flooding would occur on- or off-site.

During operation of the proposed wells, the presence of new facilities at each project site and changes in the extent of permeable or impermeable surfaces could alter the direction and volume of overland flows during both wet and dry periods. Implementation of drainage improvements within future OBMPU project sites during construction will ensure that, during operation, on- and off-site flooding is minimized to a less than significant level. Mitigation is required to minimize the potential for significant changes to the drainage patterns on- and off-site.

Project Category 2: Conveyance Facilities and Ancillary Facilities (PEs 2, 4-9)

This category includes the construction of up to 550,000 LF of new pipelines, booster pump stations, reservoirs and minor appurtenances whose number. The proposed conveyance facilities and ancillary facilities would be implemented throughout the entire Chino Basin.

Impacts would be the same as those identified under Project Category 1; however, it is anticipated that the majority of the facilities proposed as part of Project Category 2 would be more than one acre in size and as such would be subject to a CGP or SWPPP for development of each individual project. Mitigation to address implementation of a drainage management plan or otherwise retain runoff onsite for each project is required to reduce impacts to a level of less than significant. Development of conveyance facilities within roadways would result in minimal changes in the roadway drainage pattern once installed as the roadways will be returned to their original or better condition, which would minimize the potential for flooding on- or off-site.

Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands (PEs 2, 4-5, 8/9)

This Project Category includes the construction of up to 310 acres of new storage basins—several locations for which are within existing facilities, improvements to existing storage basin(s), 200 acres of flood MAR facilities, new MS4-compliance facilities, and expansion of the maximum storage space (safe storage capacity) to be used within the Chino Basin from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af between this range of storage. The specific locations of the storage basins are described in the Project Description above; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

Impacts would be the same as those identified under Project Category 1 and 2. As stated under Project Category 2, it is anticipated that the majority of the facilities proposed as part of Project Category 3 would be more than one acre in size and as such would be subject to a CGP or SWPPP for development of each individual project. Mitigation to address implementation of a drainage management plan or otherwise retain runoff onsite for each project is required to reduce on- and off-site flooding impacts to a level of less than significant. Additionally, mitigation is also required to ensure that a management plan for each storage or recharge basin is established to ensure the safety of surrounding property and people from undue risks associated with water-related hazards such as flooding.

The proposed expansion of the safe storage capacity from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward would not result in any visible above ground impacts beyond those facilities associated with the OBMPU designed to support this expansion as discussed herein. As such, it is not anticipated that this expansion would substantially alter the existing drainage pattern of the Chino Basin, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in flooding onsite or offsite. Impacts related to the facilities that would facilitate this safe storage capacity expansion are discussed throughout this document, and impacts related to the hydrology of the Chino Basin as a result of this expansion are discussed under issue (b) above.

Project Category 4: Desalters and Water Treatment Facilities (PEs 2, 4-9)

The projects proposed under this category are: upgrades at IEUA's existing Treatment Plants (discussed in IEUA's 2017 FMP PEIR), a new advanced water treatment plant (discussed in IEUA's 2017 FMP PEIR), improvements to the WFA Agua de Lejos Treatment Plant, upgrades to the Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities. Seismic impacts related to the facilities thoroughly analyzed as part of the IEUA's 2017 FMP PEIR will not be analyzed further as part of this SEIR.

Impacts would be the same as those identified under Project Category 1, 2, and 3. As stated under Project Categories 2 and 3, it is anticipated that the majority of the facilities proposed as part of Project Category 4 would be more than one acre in size and as such would be subject to a CGP or SWPPP for development of each individual project. Mitigation to address implementation of a drainage management plan or otherwise retain runoff onsite for each project is required to reduce on- and off-site flooding impacts to a level of less than significant.

Combined Project Categories

The construction of proposed facilities would require activities that would temporarily alter each project site's existing ground surface and drainage patterns. Compliance with the CGP, SWPPP, County MS4 Permits, and BMPs enforced through mitigation provided below would minimize all construction impacts to less than significant levels.

The presence of all new facilities at each project site could change permeable and impermeable surfaces and alter the direction and volume of overland flows. As such, mitigation to address implementation of a drainage management plan or otherwise retain runoff onsite for each project is required to reduce potential on- and off-site impacts to a level of less than significant.

Level of Significance Before Mitigation: Potentially Significant

*Mitigation Measures: Mitigation measures **HYD-12** through **HYD-14** are required to minimize potential on- and off-site flooding impacts in addition to the mitigation provided below.*

HYD-16: Prior to implementation of any recharge or stormwater retention basin projects as either existing or new basins, a management plan will be established to the satisfaction of SBCFCD, RCFCD Division of Safety of Dams (DSOD). This plan shall be created specifically for each individual basin to ensure the safety of surrounding property and people from undue risks associated with water-related hazards (i.e. flooding). The management plan will firmly establish a priority of flood-control functions over and above recharge or retention-related operations. Weather forecasts of upcoming storm events will be carefully monitored and in the event of a significant

forecasted storm-event, water deliveries the basins will be ceased until further notice is received from SBCFCD or RCFCD that it is safe for deliveries to resume. Additionally, each SBCFCD or RCFCD basin will have a specific management plan developed, so as to coordinate flood control with surface water recharge or retention. This mitigation measure will ensure that people and property are not subject to additional risk associated with water-related hazards in the Basin, and will allow SBCFCD or RCFCD to make full utilization of the basin's flood control capacity in the event of a storm.

Level of Significance After Mitigation: Less Than Significant

Mitigation measure **HYD-12** would require implementation of BMPs for projects of less than one acre in size that would be comparable to the requirements of the CGP and SWPPP, which are required for larger projects. This measure would control urban runoff and thereby reduce potential on- and off-site flooding.

During project design, overland flows and drainage at each OBMPU project site would be assessed and drainage facilities would be designed such that no net increase in runoff would occur, in accordance with the Riverside and San Bernardino County MS4 Permits. As required by Mitigation Measure **HYD-13**, either surface runoff shall be collected and retained or a grading and drainage plan would be developed during project design and implemented to ensure no increase in offsite discharges would occur and no substantial increased potential on- or off-site flooding would occur. Impacts would be less than significant with mitigation.

Mitigation Measure **HYD-14** would require OBMPU projects at existing well sites to remain within disturbed areas wherever feasible to minimize the potential for further ground disturbance at these sites, which may result in on- or off-site flooding. Mitigation measure **HYD-15** is also required to ensure that a management plan for each storage or recharge basin is established to ensure the safety of surrounding property and people from undue risks associated with water-related hazards such as flooding. This measure would reduce the potential for flooding on- or off-site.

Cumulative Impact Analysis

Level of Significance Before Mitigation: Potentially Significant

Concurrent construction of cumulative development within the Chino Basin area could result in temporary impacts to drainage patterns that may result in erosion or siltation, flooding, or insufficient capacity of drainage systems. All related projects within the service area would be subject to the same federal, State, and local regulations regarding implementation of BMPs under the CGP, SWPPP, and Riverside and San Bernardino Counties MS4 Permits. Therefore, cumulative development would not result in significant impacts related to drainage during construction.

However, cumulative projects could experience significant impacts to local drainage systems after rapid development of structures. The proposed OBMPU projects could result in potentially significant impacts associated with the alteration of drainage patterns that result in flooding on- or off-site. Since the project could result in potential significant impacts, the project's contribution to cumulative impacts is considered cumulatively considerable, and therefore, would require mitigation addressed above to reduce impacts to a level of less than significant.

Level of Significance After Mitigation: Less Than Significant

c(iii). Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

Project Category 1: Well Development and Monitoring Devices (PEs 1-9)
This Project Category includes the development of ASR, injection, pumping, groundwater level monitoring, and groundwater quality wells, associated well housing, as well as monitoring devices such as flow meters and extensometers. The proposed wells and monitoring devices will be installed throughout the Chino Basin.

Impacts would be the same as those discussed under issues c(i) and c(ii) above. Mitigation is required to address the potential for OBMPU facilities to create or contribute runoff that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. Additionally, the closure of abandoned well sites would require mitigation to address potential contaminated discharge that may result from refurbishing or capping a well.

Project Category 2: Conveyance Facilities and Ancillary Facilities (PEs 2, 4-9)
This category includes the construction of 550,000 LF of new pipelines, booster pump stations, reservoirs and minor appurtenances whose number. The proposed conveyance facilities and ancillary facilities would be implemented throughout the entire Chino Basin.

Impacts would be the same as those discussed under issues c(i) and c(ii) above. Mitigation is required to address the potential for OBMPU facilities to create or contribute runoff that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. Development of conveyance facilities within roadways would result in minimal changes in the roadway drainage pattern once installed as the roadways will be returned to their original or better condition, which would minimize the potential for exceeding the capacity of local stormwater drainage systems.

Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands (PEs 2, 4-5, 8/9)
This Project Category includes the construction of 310 acres of new storage basins—several locations for which are within existing facilities, improvements to existing storage basin(s), 200 acres of flood MAR facilities, new MS4-compliance facilities, and expansion of the maximum storage space (safe storage capacity) to be used within the Chino Basin from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af between this range of storage. The specific locations of the storage basins are described in the Project Description above; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

Impacts would be the same as those discussed under issues c(i) and c(ii) above. The proposed storage basins would contribute to the overall stormwater drainage system within the Chino Basin as the basins would divert and capture stormwater and dry weather discharges, which would enhance stormwater collection. However, as with facilities proposed as part of Project Categories 1, 2, and 4, mitigation is required to address the potential for OBMPU facilities to create or contribute runoff that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

The proposed expansion of the safe storage capacity from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward would not result in any visible above ground impacts beyond those facilities associated with the OBMPU designed to support this expansion as discussed herein. As such, it is not anticipated that this expansion would substantially alter the existing drainage pattern of the Chino Basin, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. Impacts related to the facilities that would facilitate this safe storage capacity expansion are discussed throughout this document, and impacts related to the hydrology of the Chino Basin as a result of this expansion are discussed under issue (b) above.

Project Category 4: Desalters and Water Treatment Facilities (PEs 2, 4-9)

The projects proposed under this category are: upgrades at IEUA's existing Treatment Plants (discussed in IEUA's 2017 FMP PEIR), a new advanced water treatment plant (discussed in IEUA's 2017 FMP PEIR), improvements to the WFA Agua de Lejos Treatment Plant, upgrades to the Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities. Seismic impacts related to the facilities thoroughly analyzed as part of the IEUA's 2017 FMP PEIR will not be analyzed further as part of this SEIR.

Impacts would be the same as those discussed under issues c(i) and c(ii) above. However, this Project Category includes the development of water treatment facilities that may require brine disposal, as such mitigation is provided to ensure that any brine generated by the new groundwater treatment facilities or expansion thereof will be disposed of in a manner that would not provide an additional source of polluted runoff. Additionally, as with facilities proposed as part of Project Categories 1, 2, and 3, mitigation is required to address the potential for OBMPU facilities to create or contribute runoff that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

Combined Project Categories

The construction of proposed facilities would require activities that would temporarily alter each project site's existing ground surface and drainage patterns, which could result in excess runoff. Compliance with the CGP, SWPPP, County MS4 Permits, and BMPs enforced through mitigation provided below would minimize all construction impacts to less than significant levels.

The presence of all new facilities at each project site could change permeable and impermeable surfaces and alter the direction and volume of overland flows. As such, mitigation to address implementation of a drainage management plan or otherwise retain runoff onsite for each project is required to reduce potential for OBMPU facilities to create or contribute runoff that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

Level of Significance Before Mitigation: Potentially Significant

*Mitigation Measures: Mitigation measures **HYD-12** through **HYD-14** are required to minimize potential for OBMPU facilities to create or contribute runoff that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.*

HYD-17: ***Prior to cleaning out, refurbishing or capping a well, samples will be obtained and chemically analyzed to ensure that the discharge does not contain any contaminants exceeding regulatory thresholds. If contaminants are discovered, then they shall be removed or lowered below the regulatory threshold prior to discharge to the environment. Discharge of non-stormwater into storm drains will require a NPDES permit.***

HYD-18: ***All new and expanded water treatment facilities associated with the OBMPU shall ensure that any brine generated from the water treatment process that cannot be otherwise treated on-site is disposed of in accordance with state and local regulations—such as through disposal to a brine line (Non-Reclaimable Wastewater System, Etiwanda Wastewater Line, and Inland Empire Brine Line, etc.)—to prevent brine from being discharged into the local stormwater collection system.***

Level of Significance After Mitigation: Less Than Significant

Mitigation measure **HYD-12** would require implementation of BMPs for projects of less than one acre in size that would be comparable to the requirements of the CGP and SWPPP, which are required for larger projects. This measure would control urban runoff and thereby reduce potential for substantial polluted runoff.

During project design, overland flows and drainage at each OBMPU project site would be assessed and drainage facilities would be designed such that no net increase in runoff would occur, in accordance with the Riverside and San Bernardino County MS4 Permits. As required by Mitigation Measure **HYD-13**, either surface runoff shall be collected and retained or a grading and drainage plan would be developed during project design and implemented to ensure no increase in offsite discharges would occur and no substantial contribution of runoff to area drainage systems would occur. Impacts would be less than significant with mitigation.

Mitigation Measure **HYD-14** would require OBMPU projects at existing well sites to remain within disturbed areas wherever feasible to minimize the potential for further ground disturbance at these sites, which may result in excess runoff. Mitigation measure **HYD-16** is also required to ensure that significant polluted runoff does not occur from contaminated discharge that may result from refurbishing or capping a well. Implementation of these mitigation measures would ensure that the project does not contribute substantial runoff; as such, impacts are less than significant. Mitigation Measure **HYD-17** is provided to ensure that brine generated by water treatment systems would be disposed of in a manner that would minimize the potential for release of polluted runoff.

<u>Cumulative Impact Analysis</u>

Level of Significance Before Mitigation: Potentially Significant

Concurrent construction of cumulative development within the Chino Basin area could result in temporary impacts to drainage patterns that may result in insufficient capacity of drainage systems. All related projects within the service area would be subject to the same federal, State, and local regulations regarding implementation of BMPs under the CGP, SWPPP, and Riverside and San Bernardino Counties MS4 Permits. Therefore, cumulative development would not result in significant impacts related to drainage during construction.

However, cumulative projects could experience significant impacts to local drainage systems after rapid development of structures. The proposed OBMPU projects could result in potentially significant impacts associated with the alteration of drainage patterns that result in substantial contribution of runoff to area drainage systems. Since the project could result in potential significant impacts, the project's contribution to cumulative impacts is considered cumulatively considerable, and therefore, would require mitigation addressed above to reduce impacts to a level of less than significant.

Level of Significance After Mitigation: Less Than Significant

c(iv). Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would impede or redirect flood flows?

<u>Project Category 1: Well Development and Monitoring Devices (PEs 1-9)</u>
This Project Category includes the development of ASR, injection, pumping, groundwater level monitoring, and groundwater quality wells, associated well housing, as well as monitoring devices such as flow meters and extensometers. The proposed wells and monitoring devices will be installed throughout the Chino Basin.

Impacts would be the mostly the same as those discussed under issues c(i), c(ii), and c(iii) above.

Mitigation is required to address the potential for OBMPU facilities to ensure that adequate drainage is developed within future OBMPU sites, which would minimize the potential for the project to impede or redirect flows as drainage within a new site will be managed efficiently. Furthermore, given that wells and monitoring devices generally encompass small footprints, the potential for such facilities to substantially redirect flood flows is minimal.

OBMPU facilities, including wells may have the potential to impact flows if placed above ground within 100-year floodplains, of which several are located in the large expanse of the Chino Basin. Because the location of future OBMPU facilities is not presently known, it is not possible to evaluate all of the potential impacts related to an individual OBMPU project's potential to impede or redirect flows, particularly within known flood hazard areas. Direct impacts to related to flood flows will be assessed through site review and evaluation on a project-by-project basis, after project specifics are known. The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) maps provided in the technical appendices will facilitate evaluation of future projects proposed under OBMPU as they are considered. With this in mind, to reduce potential impacts to a less than significant level, mitigation is outlined, with specific performance standards, which can be implemented to offset or compensate for both the temporal and permanent impacts that might impede or redirect flood flows as a result of future projects associated with the OBMPU.

<u>Project Category 2: Conveyance Facilities and Ancillary Facilities (PEs 2, 4-9)</u>
This category includes the construction of up to 550,000 LF of new pipelines, booster pump stations, reservoirs and minor appurtenances whose number. The proposed conveyance facilities and ancillary facilities would be implemented throughout the entire Chino Basin.

The construction activities associated with subsurface facilities, such as pipelines, could temporarily impact flows and would require coordination with County Flood Control and other applicable regulatory agencies before implementation if proposed facilities cross or are within jurisdictional waters or adjacent to flood control channels and easements. However, all other impacts would be the both the same as those discussed under issues c(i), c(ii), and c(iii) and as those discussed under Project Category 1 above. However, given development of conveyance facilities within roadways would result in minimal changes in the roadway drainage pattern once installed as the roadways will be returned to their original or better condition, which would minimize the potential for a given project to impede or redirect flows.

Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands (PEs 2, 4-5, 8/9)

This Project Category includes the construction of up to 310 acres of new storage basins—several locations for which are within existing facilities, improvements to existing storage basin(s), 200 acres of flood MAR facilities, new MS4-compliance facilities, and expansion of the maximum storage space (safe storage capacity) to be used within the Chino Basin from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af between this range of storage. The specific locations of the storage basins are described in the Project Description above; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

The proposed storage basins would contribute to the overall stormwater drainage system within the Chino Basin as the basins would divert and capture stormwater and dry weather discharges, which would enhance stormwater collection. The provision of flood control, stormwater detention, and water storage basin facilities is considered beneficial to area stormwater collection systems as it enables greater control of runoff and would ultimately help to prevent flooding. As such, all other impacts would be the both the same as those discussed under issues c(i), c(ii), and c(iii) and as those discussed under Project Categories 1 and 2 above.

The proposed expansion of the safe storage capacity from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward would not result in any visible above ground impacts beyond those facilities associated with the OBMPU designed to support this expansion as discussed herein. As such, it is not anticipated that this expansion would substantially alter the existing drainage pattern of the Chino Basin, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would impede or redirect flood flows. Impacts related to the facilities that would facilitate this safe storage capacity expansion are discussed throughout this document, and impacts related to the hydrology of the Chino Basin as a result of this expansion are discussed under issue (b) above.

Project Category 4: Desalters and Water Treatment Facilities (PEs 2, 4-9)

The projects proposed under this category are: upgrades at IEUA's existing Treatment Plants (discussed in IEUA's 2017 FMP PEIR), a new advanced water treatment plant (discussed in IEUA's 2017 FMP PEIR), improvements to the WFA Agua de Lejos Treatment Plant, upgrades to the Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities. Seismic impacts related to the facilities thoroughly analyzed as part of the IEUA's 2017 FMP PEIR will not be analyzed further as part of this SEIR.

Impacts would be both the same as those discussed under issues c(i), c(ii), and c(iii) and as those discussed under Project Categories 1, 2, and 3 above.

Combined Project Categories

The construction of proposed facilities would require activities that would temporarily alter each project site's existing ground surface and drainage patterns, which could result in impeding or redirecting flood flows. Compliance with the CGP, SWPPP, County MS4 Permits, and BMPs enforced through mitigation provided below would minimize all construction impacts to less than significant levels.

The presence of all new facilities at each project site could change permeable and impermeable surfaces and alter the direction and volume of overland flows. As such, mitigation to address implementation of a drainage management plan or otherwise retain runoff onsite for each project is required to reduce potential for OBMPU facilities to impede or redirect flood flows. Furthermore, given that the Chino Basin contains areas that are located within flood hazard zones, the development of several facilities in a given area may, when combined, result in a substantial potential to impede or redirect flows; as such, mitigation is required to minimize impacts thereof.

Level of Significance Before Mitigation: Potentially Significant

*Mitigation Measures: Mitigation measures **HYD-13** and **HYD-15** are required to minimize the potential for OBMPU facilities to impede or redirect flows in addition to the mitigation provided below.*

HYD-19: The Watermaster and/or Implementing Agency shall verify that any given OBMPU facility (excepting those located at existing facilities [wells, water treatment plants, etc.] and excepting the installation of in-line flow meters or other facilities required to be installed in a channel, such as diversion structures) is located outside of the 100-year floodplain by utilizing the FEMA FIRM panels for the selected area prior to project implementation. If a given project is located outside of the 100-year floodplain, then no subsequent CEQA documentation specific to floodplains are required. However, if a project is located within the 100-year floodplain either (1) a new location outside of the 100-year floodplain shall be selected, or (2) a second tier CEQA evaluation shall be completed that would address the given project's location within the 100-year floodplain.

Level of Significance After Mitigation: Less Than Significant

During project design, overland flows and drainage at each OBMPU project site would be assessed and drainage facilities would be designed such that no net increase in runoff would occur, in accordance with the Riverside and San Bernardino County MS4 Permits. As required by Mitigation Measure **HYD-13**, either surface runoff shall be collected and retained or a grading and drainage plan would be developed during project design and implemented to ensure no increase in offsite discharges would occur and no substantial increased potential for impeding or redirecting flood flows would occur. Impacts would be less than significant with mitigation.

Mitigation measure **HYD-15** is also required to ensure that a management plan for each storage or recharge basin is established to ensure the safety of surrounding property and people from undue risks associated with water-related hazards such as flooding. This measure would ensure no substantial increased potential for impeding or redirecting flood flows would occur. The Chino Basin contains several areas in the 100-year floodplain, particularly given the creeks, channels, and Santa Ana River that are within or along the boundaries of the Chino Basin. As such, mitigation measure **HYD-18** would ensure that future OBMPU projects located within a floodplain would be further evaluated to determine their potential to impede or redirect flood flows.

Cumulative Impact Analysis

Level of Significance Before Mitigation: Potentially Significant

Concurrent construction of cumulative development within the Chino Basin area could result in temporary impacts to drainage patterns that may result in erosion or siltation, flooding, or insufficient capacity of drainage systems. All related projects within the service area would be subject to the same federal, State, and local regulations regarding implementation of BMPs under the CGP, SWPPP, and Riverside and San Bernardino Counties MS4 Permits. Therefore, cumulative development would not result in significant impacts related to drainage during construction.

However, cumulative projects could experience significant impacts to local drainage systems after rapid development of structures. The proposed OBMPU could result in potentially significant impacts associated with the alteration of drainage patterns that result in flooding that may be impeded or redirected by future projects. Since the OBMPU could result in potential significant impacts, the project's contribution to cumulative impacts is considered cumulatively considerable, and therefore, would require mitigation addressed above to reduce impacts to a level of less than significant.

Level of Significance After Mitigation: Less Than Significant

d. Would the project, in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

Project Category 1: Well Development and Monitoring Devices (PEs 1-9)

This Project Category includes the development of ASR, injection, pumping, groundwater level monitoring, and groundwater quality wells, associated well housing, as well as monitoring devices such as flow meters and extensometers. The proposed wells and monitoring devices will be installed throughout the Chino Basin.

Impacts would be the mostly the same as those discussed under issue c(iii) and c(iv) above.

As stated under issue c(iv) above, OBMPU facilities, including wells may have the potential to be located within a 100-year floodplain, of which several are located within the large expanse of the Chino Basin, or within an area that could be impacted due to dam failure. Due to the distance between the Chino Basin and the Pacific Ocean—a distance of more than 25 miles separated by mountains—the risk for tsunami within the Chino Basin is minimal. Furthermore, no large bodies of water are located within the Chino Basin, and as such, seiche risk to proposed OBMPU facilities is minimal. Because the location of future OBMPU facilities is not presently known, it is not possible to evaluate all of the potential impacts related to an individual OBMPU project's potential to risk release of pollutants due to project inundation, particularly within known flood hazard zones. Direct impacts to related to flood flows will be assessed through site review and evaluation on a project-by-project basis, after project specifics are known; which will be enforced through mitigation measure **HYD-18**. The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) maps provided in the technical appendices will facilitate evaluation of future projects proposed under OBMPU as they are considered. With this in mind, to reduce potential impacts to a less than significant level, mitigation is outlined, with specific performance standards, which can be implemented to offset or compensate for both the temporal and permanent impacts that might impede or redirect flood flows as a result of future projects associated with the OBMPU. Additionally, mitigation that will ensure adequate onsite drainage management is developed is required to address the potential for OBMPU facilities to release pollutants due to project inundation.

Project Category 2: Conveyance Facilities and Ancillary Facilities (PEs 2, 4-9)
This category includes the construction of 550,000 LF of new pipelines, booster pump stations, reservoirs and minor appurtenances whose number. The proposed conveyance facilities and ancillary facilities would be implemented throughout the entire Chino Basin.

Impacts would be the mostly the same as those discussed under issue c(iii) and c(iv) above and the same as those identified under Project Category 1.

Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands (PEs 2, 4-5, 8/9)
This Project Category includes the construction of 310 acres of new storage basins—several locations for which are within existing facilities, improvements to existing storage basin(s), 200 acres of flood MAR facilities, new MS4-compliance facilities, and expansion of the maximum storage space (safe storage capacity) to be used within the Chino Basin from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af between this range of storage. The specific locations of the storage basins are described in the Project Description above; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

The proposed storage basins would contribute to the overall stormwater drainage system within the Chino Basin as the basins would divert and capture stormwater and dry weather discharges, which would enhance stormwater collection. The provision of flood control, stormwater detention, and water storage basin facilities is considered beneficial to area stormwater collection systems as it enables greater control of runoff and would ultimately help to prevent flooding. As such, all other impacts would be the both the same as those discussed under issues c(iii) and c(iv) and as those discussed under Project Categories 1 and 2 above.

The proposed expansion of the safe storage capacity from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward would not result in any visible above ground impacts beyond those facilities associated with the OBMPU designed to support this expansion as discussed herein. As such, it is not anticipated that this expansion would, in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation. Impacts related to the facilities that would facilitate this safe storage capacity expansion are discussed throughout this document, and impacts related to the hydrology of the Chino Basin as a result of this expansion are discussed under issue (b) above.

Project Category 4: Desalters and Water Treatment Facilities (PEs 2, 4-9)
The projects proposed under this category are: upgrades at IEUA's existing Treatment Plants (discussed in IEUA's 2017 FMP PEIR), a new advanced water treatment plant (discussed in IEUA's 2017 FMP PEIR), improvements to the WFA Agua de Lejos Treatment Plant, upgrades to the Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities. Seismic impacts related to the facilities thoroughly analyzed as part of the IEUA's 2017 FMP PEIR will not be analyzed further as part of this SEIR.

Impacts would be both the same as those discussed under issues c(iii) and c(iv), and as those discussed under Project Categories 1, 2, and 3 above. However, this Project Category includes the development of water treatment facilities that may require brine disposal, as such mitigation measure **HYD-17** is provided to ensure that any brine generated by the new groundwater treatment facilities or expansion thereof will be disposed of in a manner that would minimize the potential for OBMPU facilities to release pollutants due to project inundation.

Combined Project Categories
The presence of all new facilities at each project site could create a new risk for pollutants within a given site to be released as a result of inundation. As such, mitigation to address implementation of a drainage management plan or otherwise retain runoff onsite for each project is required to reduce potential for OBMPU facilities to risk release of pollutants from inundation. Furthermore, given that the Chino Basin contains areas that are located within flood hazard zones, the development of several facilities in a given area may, when combined, result in a substantial potential to release pollutants as a result of inundation; as such, mitigation is required to minimize impacts thereof.

Level of Significance Before Mitigation: Potentially Significant

*Mitigation Measures: Mitigation measures **HYD-13**, **HYD-15**, **HYD-17**, and **HYD-18** are required to minimize the potential for OBMPU facilities to release pollutants as a result of inundation.*

Level of Significance After Mitigation: Less Than Significant

As required by Mitigation Measure **HYD-13**, either surface runoff shall be collected and retained or a grading and drainage plan would be developed during project design and implemented to ensure that pollutants are managed on site and the potential for risk of release thereof due to inundation is minimized. Impacts would be less than significant with mitigation.

Mitigation measure **HYD-15** is also required to ensure that a management plan for each storage or recharge basin is established to ensure the safety of surrounding property and people from undue risks associated with water-related hazards such as flooding. This measure would ensure no substantial increased potential for release pollutants as a result of inundation would result from implementation of the OBMPU. The Chino Basin contains several areas in the 100-year floodplain, particularly given the creeks, channels, and Santa Ana River that are within or along the boundaries of the Chino Basin. As such, mitigation measure **HYD-17** would ensure that future OBMPU projects located within a floodplain would be further evaluated to determine their potential to result in significant impacts related to flood inundation. Mitigation Measure **HYD-18** is provided to ensure that brine generated by water treatment systems would be disposed of in a manner that would minimize the potential to release pollutants as a result of inundation.

Cumulative Impact Analysis

Level of Significance Before Mitigation: Potentially Significant

Concurrent construction of cumulative development within the Chino Basin area could result in temporary impacts to drainage patterns that may result in flooding. All related projects within the service area would be subject to the same federal, State, and local regulations regarding implementation of BMPs under the CGP, SWPPP, and Riverside and San Bernardino Counties MS4 Permits. Therefore, cumulative development would not result in significant impacts related to flooding or inundation.

However, cumulative projects could experience significant impacts related to release of pollutants due to flooding and inundation. Since the OBMPU could result in potential significant impacts, the project's contribution to cumulative impacts is considered cumulatively considerable, and therefore, would require mitigation addressed above to reduce impacts to a level of less than significant.

Level of Significance After Mitigation: Less Than Significant

e. Does the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Watermaster and the IEUA are co-permittees for the Chino Basin maximum-benefit SNMP incorporated in the Basin Plan (see Section 3.4.3.7). The maximum-benefit SNMP was developed pursuant to PE 7 to enable the recharge and reuse of recycled water in the Basin. It defines the management actions that Watermaster and IEUA must take to manage total dissolved solids (TDS) and nitrate concentrations in Chino Basin groundwater and in the IEUA's recycled water and the TDS and nitrate concentration limitations for recycled water reuse activities. The Project will be operated such that there is no conflict with or obstruction of the Basin Plan.

Additionally, one of the proposed activities under the 2020 OBMPU is to determine if compliance with the recycled water recharge dilution requirements defined in Watermaster and the IEUA's maximum-benefit SNMP can be achieved under existing management plans and, if not, to develop a plan to achieve compliance. Implementation of the scope of work for this activity as described in the 2020 OBMPU Scoping Report will result in (1) the periodic characterization and understanding of the ability to comply with the TDS and nitrate dilution requirements in the short- and long-term; and if non-compliance is projected, (2) a plan that describes the conceptual designs, operating plans, and costs of alternative salt-offset programs or projects, and (3) implementation of the selected salt-offset program or projects, such as the expansion of the desalter (see Project Category 4). Because the maximum-benefit SNMP is an explicit requirement of Basin Plan, these are required outcomes for Watermaster and the IEUA to continue the recycled water recharge program.

The current OBMPU contains a set of management programs that will improve the reliability and long-term sustainability of the Chino Basin and the water supply reliability of the Judgment Parties and sets the framework for the next 20 years of basin-management activities. The OBMPU specifically aims for sustainability in Goal No.3 - Enhance Management of the Basin. The intent of this goal is to encourage sustainable management of the Chino Basin to avoid Material Physical Injury, promote local control, and improve water-supply reliability for the benefit of all Chino Basin Parties. As such, the proposed OBMPU is not anticipated to conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

Level of Significance Before Mitigation: Less Than Significant

Mitigation Measures: None Required

Level of Significance After Mitigation: Less Than Significant

FIGURE 4.4-1

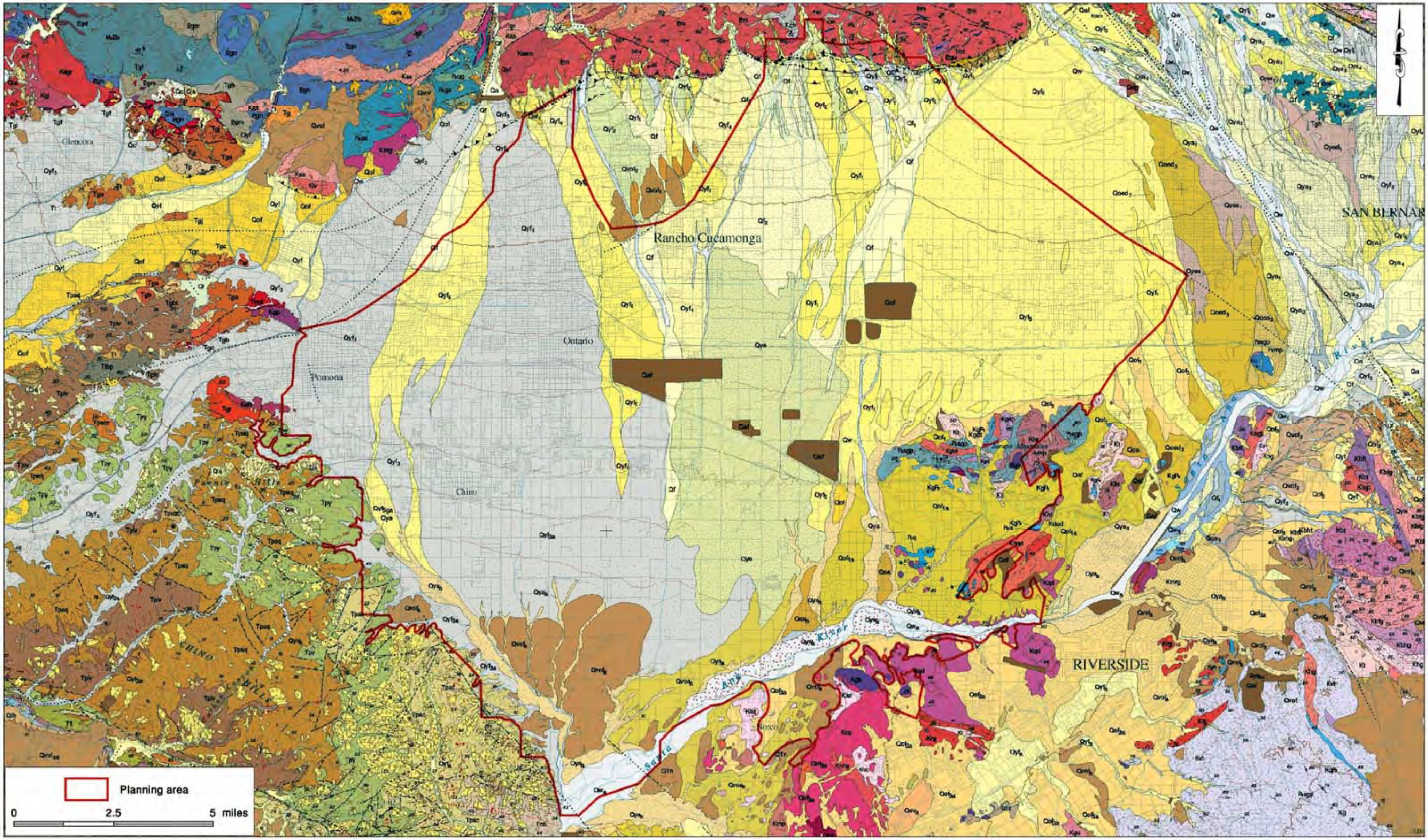
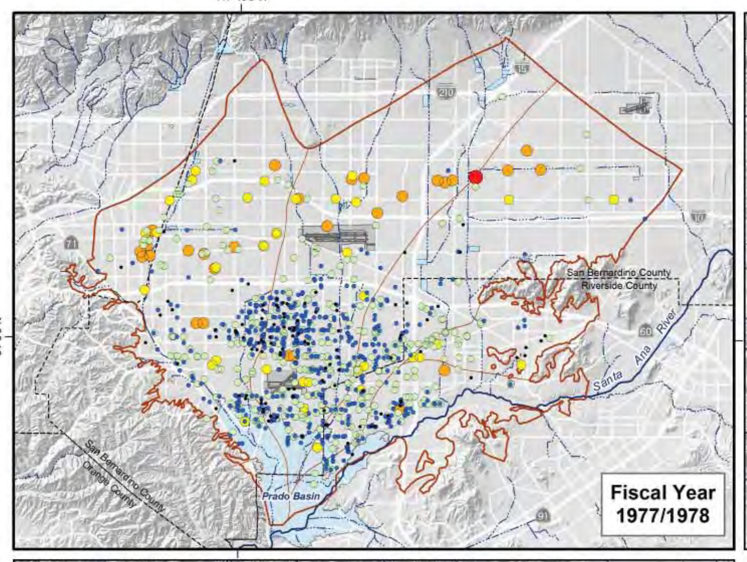
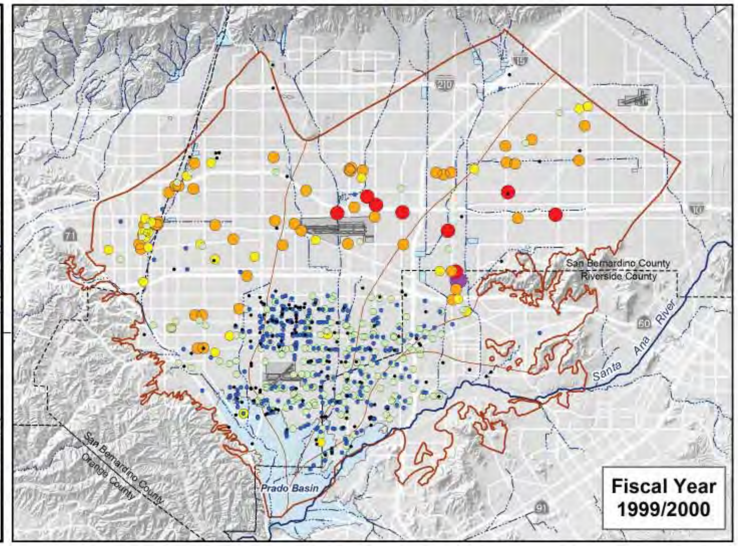


Figure 1. Surface geology in the planning area. Source: D.M. Morton and F.K. Miller: Geologic Map of the San Bernardino and Santa Ana 30'x 60' Quadrangles, California (U.S. Geological Survey 2006).

FIGURE 4.7-2

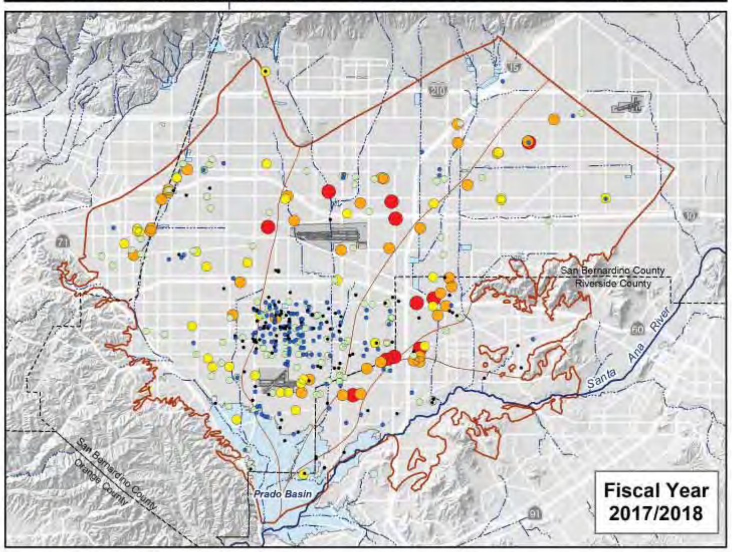




Groundwater Production (af)

- < 10
- 10 - 100
- 100 - 500
- 500 - 1,000
- 1,000 - 2,500
- 2,500 - 5,000
- > 5,000

Other key map features are described in the legend of Exhibit 1-1.



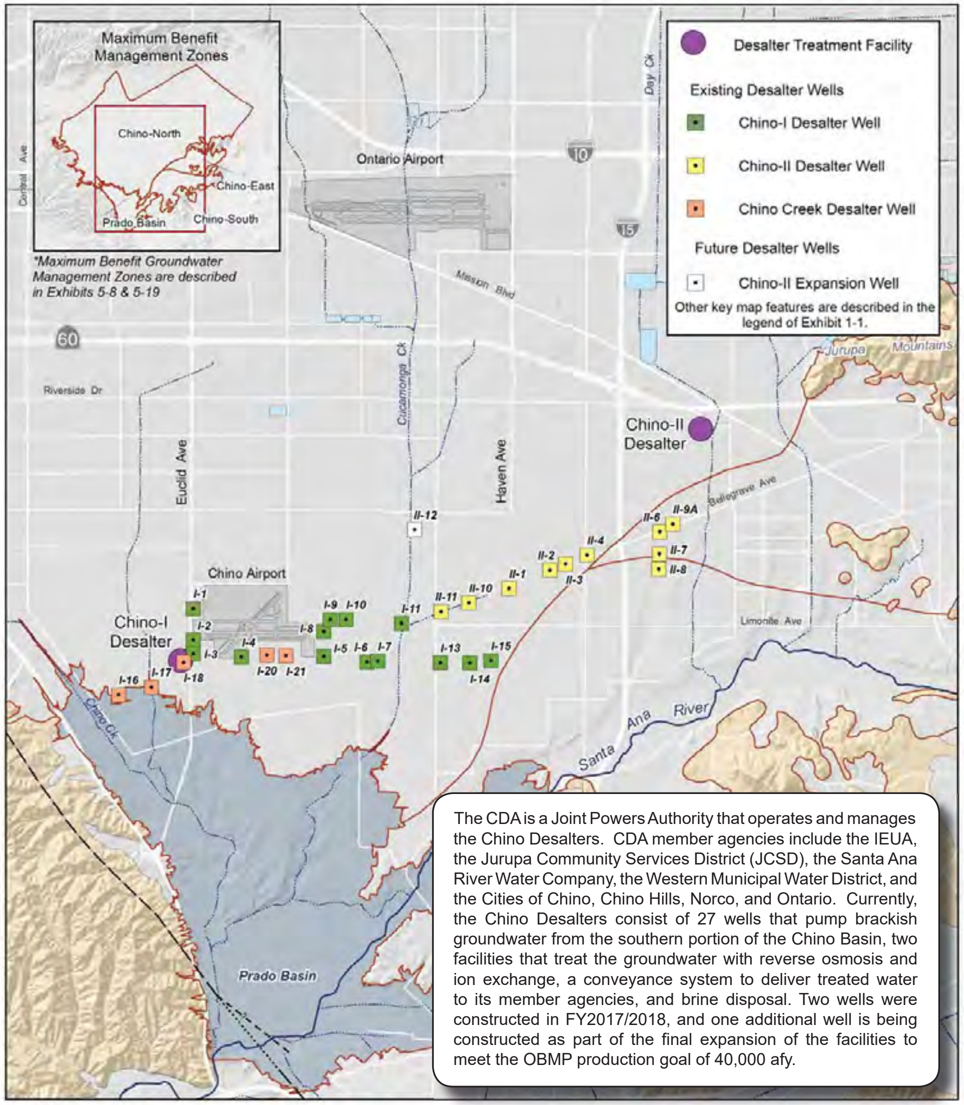
In FY 1977/1978, south of Highway 60, production was about 93,500 af, accounting for about 59 percent of total production. North of Highway 60, production was about 65,300 af, accounting for about 41 percent of total production. Agricultural groundwater production estimates were made for the Chino Basin Safe Yield recalculation (WEI, 2015), and these production estimates were significantly greater than reported by the Agricultural Pool Parties in the early post Judgment years. Exhibit 3-2b is similar to Exhibit 3-2a; however, the agricultural production estimates were revised, consistent with those used in the Safe Yield recalculation. For FY 1977/1978, the revised agricultural production was estimated to be about 30,000 af greater than reported and was estimated to have occurred primarily south of Highway 60. Reported and model-estimated agricultural production estimates became aligned in the early 2000s.

Between FY 1977/1978 and FY 1999/2000, groundwater production shifted north, with groundwater production south of Highway 60 declining from 59 to 31 percent of total production. North of Highway 60, production increased from 41 to 69 percent of total production. This shift in production was a result of land use transitions: south of Highway 60, irrigated agricultural land had been largely replaced by dairies, which have lower water use requirements; north of Highway 60, Appropriative Pool production increased concurrent with urbanization. In FY 1999/2000, after the CDA wells were constructed and came online south of Highway 60 (see Exhibit 3-4), the spatial distribution of pumping began to shift south of Highway 60 again.

The number of wells producing greater than 1,000 afy began to increase in FY 1977/1978. This was due to the increase in urbanization, which tends to concentrate production over fewer wells, compared to agricultural production. The construction and operation of the Chino Desalter wells, most of which produce more than 1,000 afy, also contributed to this increase. Since 2007, groundwater production has declined due to the economic downturn that occurred in 2008, drought conditions, state-mandated water conservation measures, and a trend towards greater water conservation.

Pool	FY 1977/1978 Production		FY 1999/2000 Production		FY 2017/2018 Production	
	af	percentage	af	percentage	af	percentage
Agricultural	87,800	55	44,200	25	18,900	13
Overlying Non-Agricultural	10,100	6	5,600	3	2,900	2
Appropriative	62,400	39	128,900	72	88,700	23
CDA	0	0	0	0	30,100	21
Total	**160,300**	**100**	**178,700**	**100**	**140,600**	**100**

FIGURE 4.7-3



The CDA is a Joint Powers Authority that operates and manages the Chino Desalters. CDA member agencies include the IEUA, the Jurupa Community Services District (JCSD), the Santa Ana River Water Company, the Western Municipal Water District, and the Cities of Chino, Chino Hills, Norco, and Ontario. Currently, the Chino Desalters consist of 27 wells that pump brackish groundwater from the southern portion of the Chino Basin, two facilities that treat the groundwater with reverse osmosis and ion exchange, a conveyance system to deliver treated water to its member agencies, and brine disposal. Two wells were constructed in FY2017/2018, and one additional well is being constructed as part of the final expansion of the facilities to meet the OBMP production goal of 40,000 afy.

The need for the Chino Desalters was described in the OBMP Phase 1 Report. Throughout the 20th century, land uses in the southern portion of the Chino Basin were primarily agricultural. Over time, groundwater quality degraded in this area, and it is not suitable for municipal use unless it is treated to reduce TDS, nitrate, and other contaminant concentrations. The OBMP recognized that urban land uses would ultimately replace agriculture and that if municipal pumping did not replace agricultural pumping, groundwater levels would rise and discharge to the Santa Ana River. The potential consequences would be the loss of Safe Yield in the Chino Basin and the degradation of the quality of the Santa Ana River—the latter of which could impair downstream beneficial uses in Orange County. Mitigating the lost yield and the subsequent degradation of water quality would come with high costs to the Chino Basin parties.

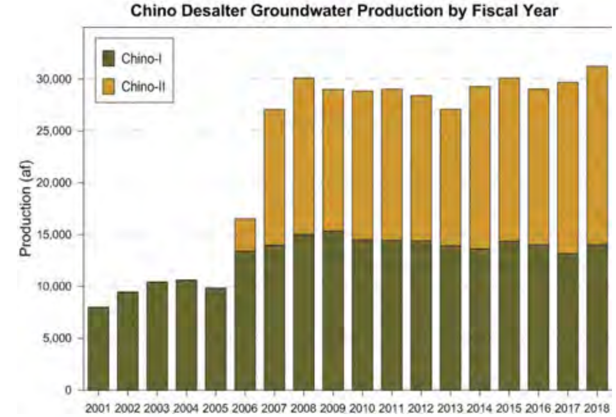
The Chino Desalters were designed to replace the expected decrease in agricultural production and accomplish the following objectives: meet emerging municipal demands in the Chino Basin, maintain or enhance Safe Yield, remove groundwater contaminants, and protect the beneficial uses of the Santa Ana River. Pursuant to the OBMP and Peace Agreement, Watermaster's goal for desalter production was set at 40,000 afy.

The Chino Desalters also became a fundamental component of the salt and nutrient management plan for the Chino Basin, which was written into the Water Quality Control Plan for the Santa Ana River Basin (Basin Plan). In 2004, the Regional Board adopted maximum-benefit based water quality objectives in the Chino Basin, enabling the implementation of large-scale recycled-water reuse projects in the Chino Basin for direct reuse an indirect potable reuse. Watermaster and the IEUA made nine "maximum-benefit commitments," ensuring that beneficial uses in the Chino Basin will not be impaired by TDS and nitrate and groundwater management in the Chino Basin will not contribute to the impairment of beneficial uses of the Santa Ana River. The operation of the Chino Desalters is necessary to attain "Hydraulic Control" in the southern portion of Chino Basin. Hydraulic Control is achieved when groundwater discharge from the Chino-North Management Zone to the Santa Ana River is eliminated or reduced to de minimis levels by pumping at the Chino Desalter wells. Hydraulic Control is necessary to maximize the Safe Yield and to prevent degraded groundwater from discharging from the Chino Basin to the Santa Ana River. Four of the nine maximum-benefit commitments are related to the Chino Desalters and Hydraulic Control.

The Chino-I Desalter began operating in 2000 with a design capacity of 8 mgd (about 9,000 afy). In 2005, the Chino-I Desalter was expanded to 14 mgd (about 16,000 afy). The Chino-II Desalter began operating in June 2006 at a capacity of 15 mgd (about 17,000 afy). In 2012, the CDA completed construction of the Chino Creek Well Field (CCWF). Production at some of the CCWF wells began in late FY 2013/2014, and production at the other CCWF wells began in early 2016, reaching the level of production required to achieve Hydraulic Control. Currently, the Chino-I and Chino-II Desalters produce about 30,000 afy of groundwater. The chart below shows annual groundwater production for the Chino Desalters. The final expansion of the Chino Desalters to achieve the OBMP production goal of 40,000 afy includes the construction of one well and the startup of two newly constructed wells in the south-central portion of the Chino Basin that will feed into the Chino-II Desalter. Two of these wells are anticipated to begin production at the end of FY 2018/2019, and the third well is anticipated to begin production in early FY 2019/2020.

Pursuant to the Peace II Agreement, Watermaster initiated additional controlled overdraft, referred to as "Re-operation." Re-operation is the controlled overdraft of 400,000 af through 2030, allocated specifically to meet the replenishment obligation of the Chino Desalters (WEI, 2009b). An investigation conducted to evaluate the Peace II Agreement and desalter expansion concluded that Re-operation was required to ensure the attainment of Hydraulic Control (WEI, 2007).

Chino Desalter Groundwater Production by Fiscal Year



Prepared by:

WEI
Wildermuth Environmental, Inc.

Author: CS
Date: 20190124
File: Exhibit_3-4_Desalters

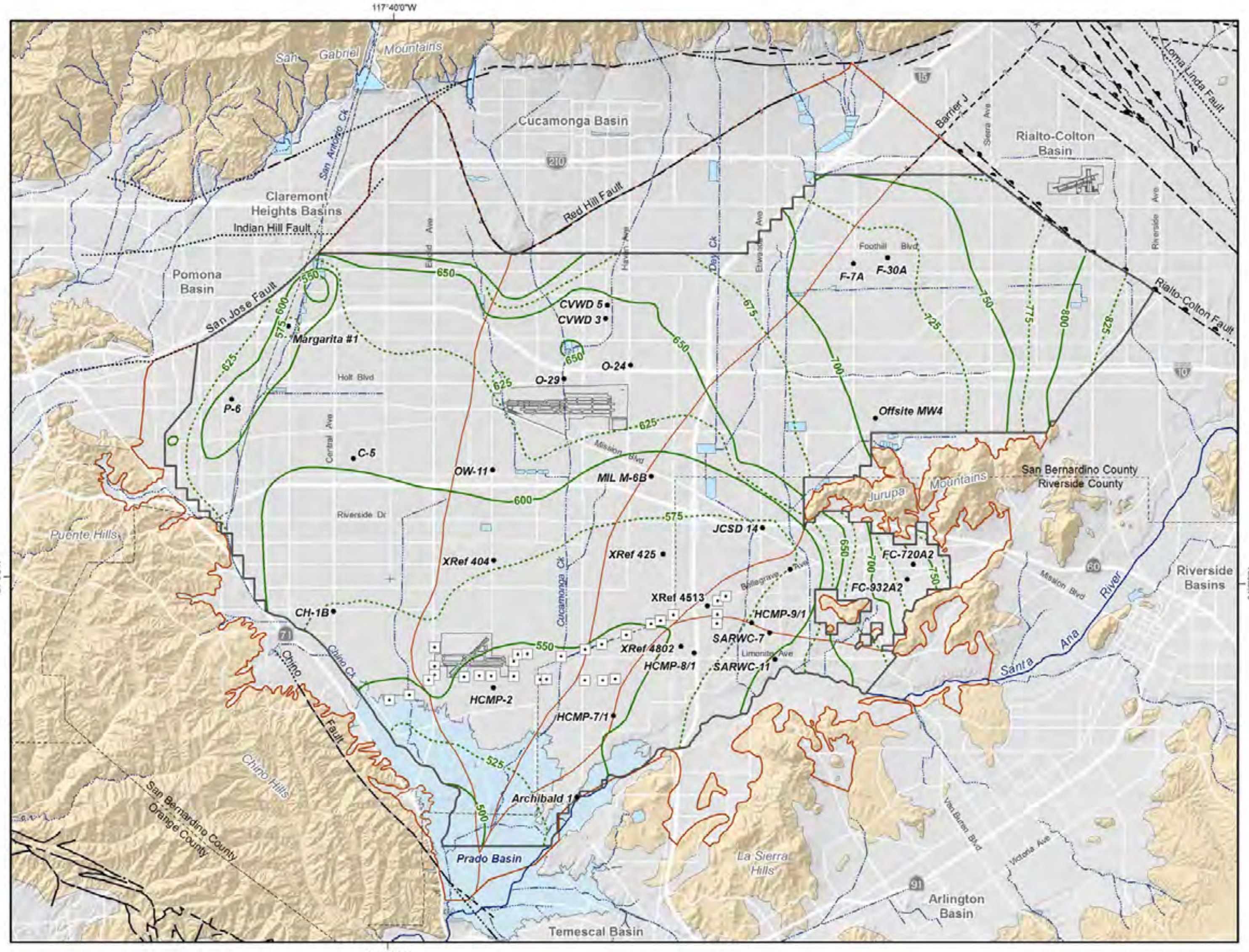
0 1 2 3 4 5 Miles
0 2 4 6 8 Km

Prepared for:
2018 State of the Basin Report
Basin Production and Recharge

Chino Basin Desalter Well Production

Exhibit 3-4

FIGURE 4.7-4



-800- .775.. Groundwater-Elevation Contours (feet above mean sea-level)

Boundary of Contoured Area (contours are not shown outside of this boundary due to lack of groundwater-level data)

• Well With a Groundwater-Level Time History Plotted on Exhibits 4-10 through 4-14

▫ Chino Basin Desalter Well

Other key map features are described in the legend of Exhibit 1-1.

Prepared by:

WEI
WILDERMUTH ENVIRONMENTAL, INC.

Author: EM
Date: 5/24/2019
File: Exhibit_4-4_sp2018.mxd

0 1 2 3 4 5 Miles
0 2 4 6 8 Km

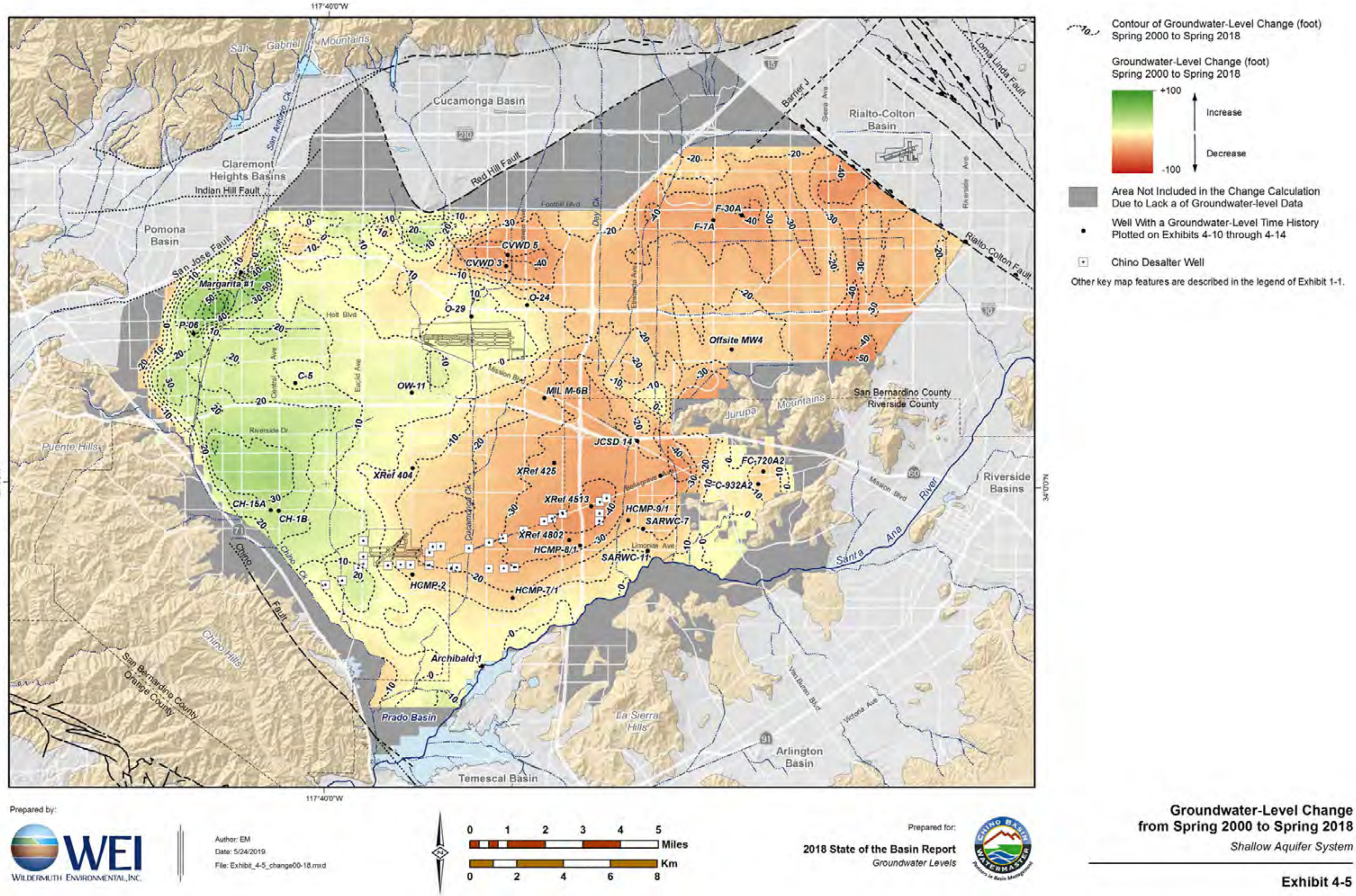
Prepared for:

2018 State of the Basin Report
Groundwater Levels

Groundwater-Elevation Contours for Spring 2018
Shallow Aquifer System

Exhibit 4-4

FIGURE 4.7-5

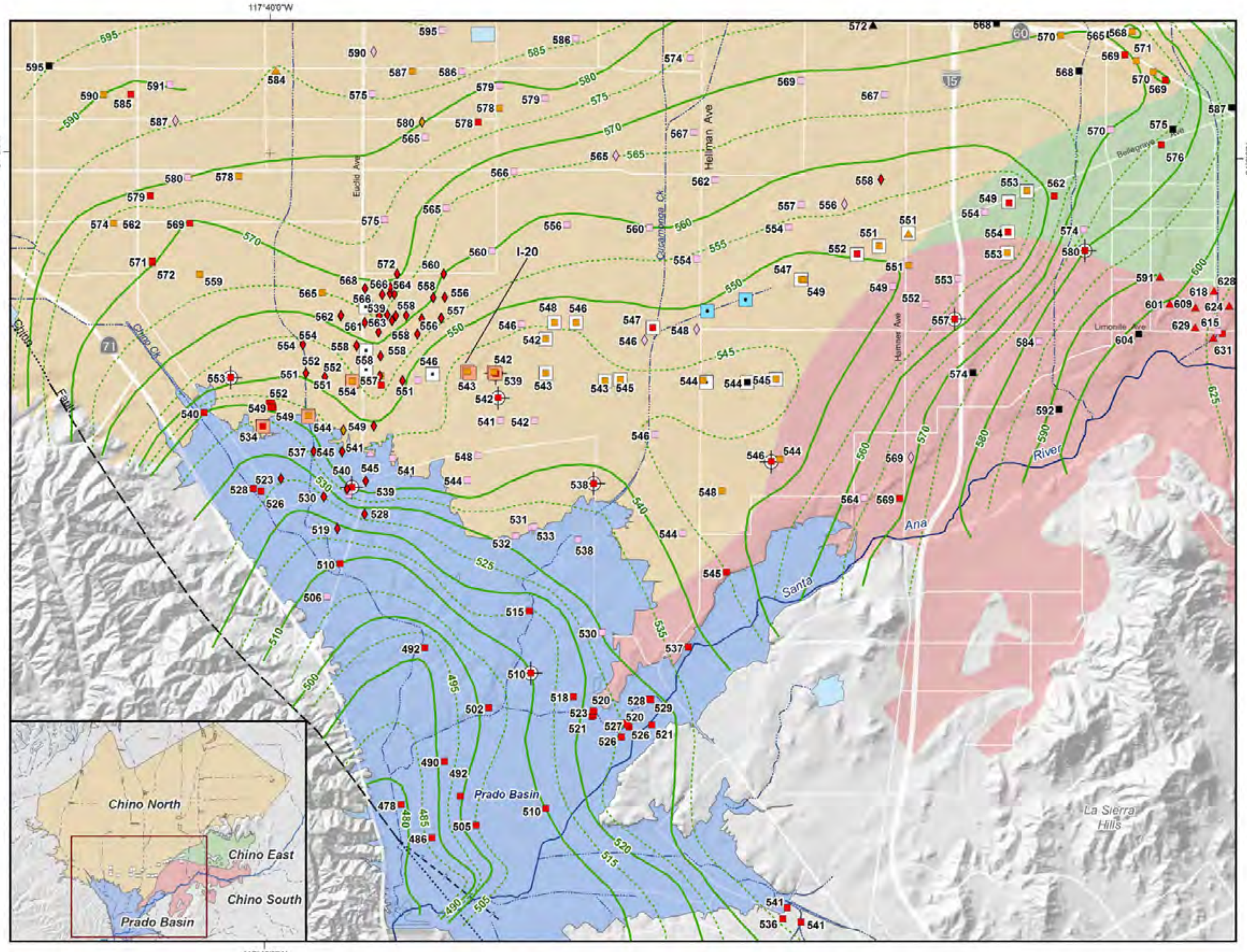


Groundwater-Level Change from Spring 2000 to Spring 2018

Shallow Aquifer System

Exhibit 4-5

FIGURE 4.7-6



800 / 775 Groundwater-Elevation Contours (feet above mean sea-level)

Water-Level Qualification Symbol Code (Showing Groundwater Elevation)

- Static
- Recovering
- Estimated Static
- Dynamic

Aquifer Layer Where Well Casing is Perforated

- Layer 1
- Layers 1 & 2
- Layers 1 & 2 & 3
- Unknown Well Construction

- Chino-I Desalter Well
- Chino-II Desalter Well
- Chino Creek Desalter Well
- HCMP Monitoring Well

Numbers next to well indicate groundwater-levels

Other key map features are described in the legend of Exhibit 1-1.

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Author: EM
Date: 5/24/2019
File: Exhibit_4-8_HCMP_18.mxd

0 1 2 Miles
0 1 2 3 Km

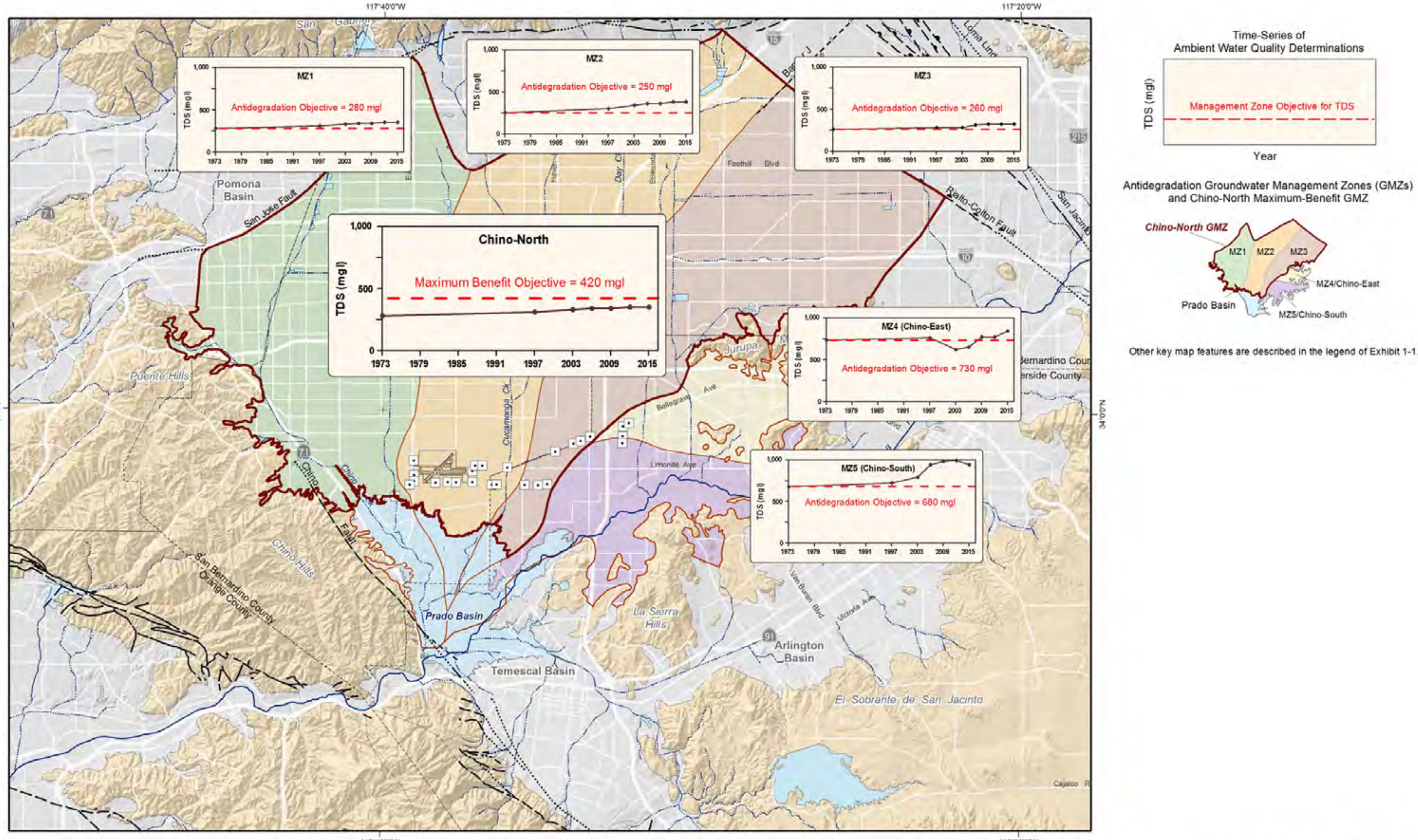
Prepared for:

2018 State of the Basin Report
Groundwater Levels

State of Hydraulic Control in Spring 2018
Shallow Aquifer System

Exhibit 4-8

FIGURE 4.7-7



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Author: RT
Date: 5/20/2019
File: 2018_Exhibit_5-22_AWQ_TDS_new.mxd

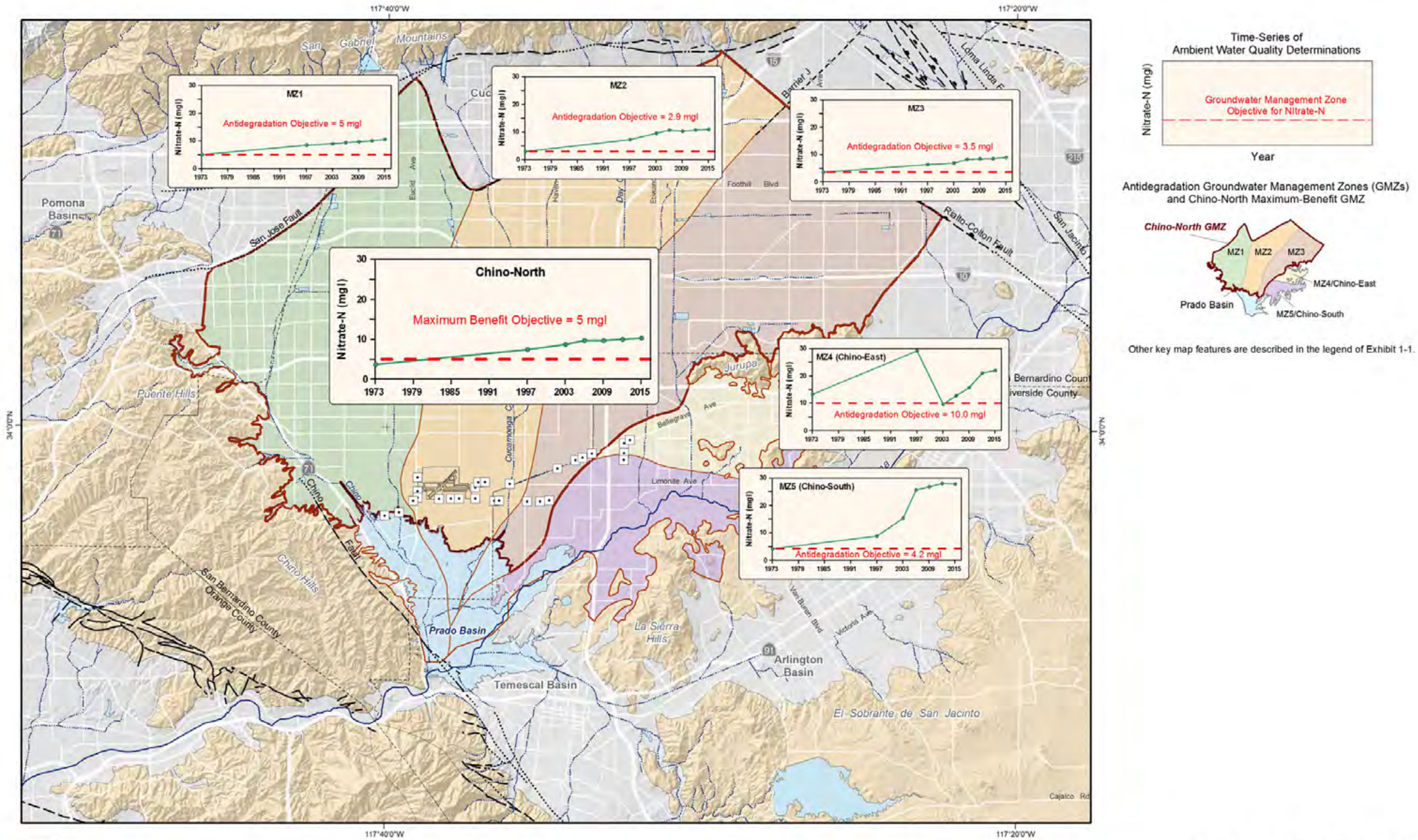
Prepared for:

2018 State of the Basin Report
Groundwater Quality

Trends in Ambient Water Quality Determinations for Total Dissolved Solids By Groundwater Management Zone

Exhibit 5-22

FIGURE 4.7-8



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Author: RT
Date: 5/20/2019
File: 2018_Exhibit_5-23_AWQ_NO3_new.mxd

0 1 2 3 4 5 Miles
0 2 4 6 8 Km

Prepared for:

2018 State of the Basin Report
Introduction

CHINO BASIN WATERMASTER

Trends in Ambient Water Quality Determinations for Nitrate as Nitrogen By Groundwater Management Zone

Exhibit 5-23

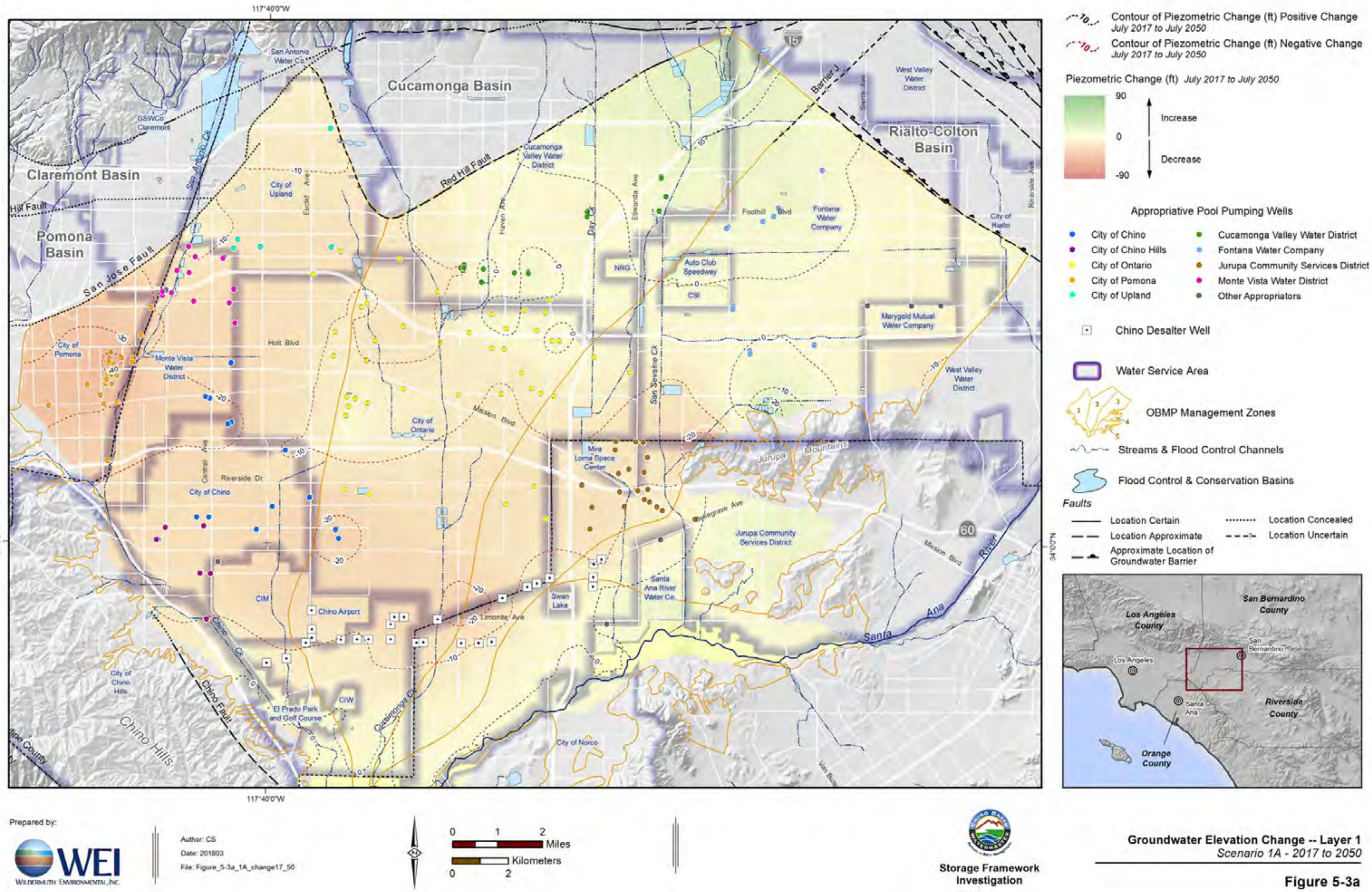
FIGURE 4.7-9

Table 3-5
Water Budget for Chino Basin (2018-2050)
Scenario 1A
(acre-ft)

End of Fiscal Year	Recharge										Discharge							Recharge minus Discharge	Annual Net Recharge	Cumulative Change in Storage
	I	I	R	I	I	I	I	I	R		I	I	I	R	R	R				
	Subsurface Boundary Inflow, Chino Hills, Six Basins, Cucamonga Basin and Rialto Basin	Subsurface Boundary Inflow from Bloomington Divide	Subsurface Inflow From Temescal Basin	Deep Infiltration of Precipitation and Applied Water Projections	Streambed Infiltration in the Upper Santa Ana River Tributaries	Storm Water Recharge in Spreading Basins	Recycled Water Recharge	Imported Water Recharge	Streambed Infiltration in the Santa Ana River and Its Lower Tributaries	Total Recharge	CDA Pumping	Overlying Non Ag and Appropriative Pools Pumping	Overlying Agricultural Pool Pumping	ET by Riparian Vegetation	GW Discharge to the Santa Ana River and Chino and Mill Creeks	Subsurface Boundary Outflow	Total Discharge			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
2018	19,106	8,153	7,643	98,283	1,098	11,822	16,000	3,010	32,898	198,014	35,000	94,803	17,586	18,456	21,126	3,065	190,036	7,978	136,357	7,978
2019	19,106	8,153	7,528	98,557	1,101	11,822	16,420	3,010	32,524	198,221	40,000	92,530	16,595	18,469	21,148	3,132	191,874	6,346	136,042	14,324
2020	19,106	8,153	7,317	98,904	1,104	11,822	16,420	3,010	32,650	198,486	40,000	90,257	15,679	18,420	20,815	3,178	188,349	10,137	136,643	24,461
2021	19,106	8,153	7,145	98,471	1,106	17,173	16,420	3,010	33,377	203,961	40,000	91,824	15,072	18,502	20,533	3,273	189,204	14,757	142,223	39,218
2022	19,106	8,153	7,033	98,398	1,109	17,173	16,420	3,010	33,229	203,631	40,000	93,390	14,511	18,506	20,599	3,316	190,321	13,310	141,781	52,528
2023	19,106	8,153	6,941	98,144	1,112	17,173	16,420	3,010	33,167	203,227	40,000	94,956	13,889	18,505	20,554	3,353	191,257	11,970	141,385	64,498
2024	19,106	8,153	6,847	97,892	1,115	17,173	16,420	3,010	33,192	202,908	40,000	96,522	13,255	18,475	20,910	3,455	192,617	10,291	140,637	74,789
2025	19,106	8,153	6,825	97,637	1,118	17,173	16,420	3,010	32,675	202,117	40,000	98,088	12,788	18,388	20,439	3,373	193,077	9,040	140,487	83,830
2026	19,106	8,153	6,743	97,384	1,121	17,173	16,420	3,010	32,631	201,741	40,000	99,619	12,020	18,385	20,410	3,409	193,842	7,898	140,107	91,728
2027	19,106	8,153	6,680	97,130	1,124	17,173	16,420	3,010	32,560	201,356	40,000	101,149	11,606	18,386	20,414	3,436	194,992	6,364	139,690	98,092
2028	19,106	8,153	6,628	96,875	1,126	17,173	16,420	3,010	32,507	200,999	40,000	102,680	11,429	18,386	20,428	3,459	196,383	4,616	139,295	102,708
2029	19,106	8,153	6,581	96,622	1,129	17,173	16,420	3,010	32,514	200,708	40,000	104,211	10,687	18,385	20,422	3,479	197,184	3,524	138,992	106,232
2030	19,106	8,153	6,537	96,369	1,132	17,173	16,420	3,010	32,459	200,359	40,000	105,742	9,968	18,393	20,484	3,497	198,085	2,275	138,555	108,507
2031	19,106	8,153	6,498	96,071	1,132	17,173	16,420	0	32,472	197,026	40,000	108,838	9,705	18,397	20,508	3,513	200,961	-3,936	138,187	104,571
2032	19,106	8,153	6,464	95,773	1,132	17,173	16,420	554	32,526	197,301	40,000	111,934	9,536	18,394	20,478	3,527	203,870	-6,568	137,928	98,003
2033	19,106	8,153	6,432	95,473	1,132	17,173	16,420	1,140	32,624	197,653	40,000	115,031	9,306	18,385	20,403	3,541	206,666	-9,013	137,764	88,990
2034	19,106	8,153	6,401	95,172	1,132	17,173	16,420	1,713	32,735	198,006	40,000	118,127	8,662	18,375	20,308	3,554	209,025	-11,020	137,636	77,971
2035	19,106	8,153	6,373	94,876	1,132	17,173	16,420	2,203	32,830	198,266	40,000	121,223	7,908	18,367	20,215	3,566	211,278	-13,012	137,495	64,958
2036	19,106	8,153	6,347	94,574	1,132	17,173	16,420	2,672	32,886	198,463	40,000	123,652	7,122	18,359	20,148	3,576	212,857	-14,394	137,289	50,565
2037	19,106	8,153	6,323	94,272	1,132	17,173	16,420	3,001	33,008	198,588	40,000	126,080	6,613	18,350	20,029	3,586	214,658	-16,069	137,203	34,495
2038	19,106	8,153	6,301	93,970	1,132	17,173	16,420	3,384	33,168	198,808	40,000	128,508	6,414	18,337	19,884	3,596	216,739	-17,931	137,187	16,564
2039	19,106	8,153	6,279	93,663	1,132	17,173	16,420	3,830	33,325	199,082	40,000	130,937	5,513	18,322	19,746	3,605	218,123	-19,041	137,158	-2,477
2040	19,106	8,153	6,260	93,361	1,132	17,173	16,420	4,136	33,428	199,168	40,000	133,365	4,808	18,310	19,609	3,613	219,705	-20,536	137,081	-23,013
2041	19,106	8,153	6,241	93,357	1,132	17,173	16,420	4,480	33,590	199,652	40,000	133,365	4,808	18,296	19,469	3,621	219,560	-19,908	137,365	-42,921
2042	19,106	8,153	6,225	93,351	1,132	17,173	16,420	4,236	33,795	199,591	40,000	133,365	4,808	18,282	19,313	3,628	219,396	-19,805	137,712	-62,726
2043	19,106	8,153	6,208	93,346	1,132	17,173	16,420	4,236	33,994	199,768	40,000	133,365	4,808	18,267	19,173	3,635	219,248	-19,480	138,037	-82,206
2044	19,106	8,153	6,193	93,340	1,132	17,173	16,420	4,236	34,204	199,958	40,000	133,365	4,808	18,251	19,027	3,641	219,093	-19,135	138,382	-101,341
2045	19,106	8,153	6,178	93,334	1,132	17,173	16,420	4,236	34,439	200,172	40,000	133,365	4,808	18,236	18,881	3,648	218,938	-18,766	138,751	-120,107
2046	19,106	8,153	6,165	93,328	1,132	17,173	16,420	4,236	34,716	200,428	40,000	133,365	4,808	18,219	18,720	3,654	218,766	-18,338	139,179	-138,444
2047	19,106	8,153	6,152	93,320	1,132	17,173	16,420	4,236	34,979	200,671	40,000	133,365	4,808	18,201	18,579	3,659	218,613	-17,942	139,575	-156,386
2048	19,106	8,153	6,139	93,314	1,132	17,173	16,420	4,236	35,223	200,897	40,000	133,365	4,808	18,186	18,447	3,664	218,470	-17,573	139,944	-173,960
2049	19,106	8,153	6,128	93,305	1,132	17,173	16,420	4,236	35,446	201,099	40,000	133,365	4,808	18,171	18,331	3,669	218,344	-17,246	140,271	-191,205
2050	19,106	8,153	6,116	93,296	1,132	17,173	16,420	4,236	35,653	201,285	40,000	133,365	4,808	18,157	18,218	3,675	218,223	-16,938	140,579	-208,143
Statistics for the Period 2016 through 2050																				
Total	630,498	269,049	215,870	3,151,164	37,138	550,656	541,440	104,370	1,101,426	6,601,610	1,315,000	3,817,113	298,757	605,520	657,767	115,597	6,809,754	-208,143	4,576,917	
Total (%)	10%	4%	3%	48%	1%	8%	8%	2%	17%	100%	19%	56%	4%	9%	10%	2%	100%			
Average	19,106	8,153	6,542	95,490	1,125	16,687	16,407	3,163	33,377	200,049	39,848	115,670	9,053	18,349	19,932	3,503	206,356	-6,307	138,694	3,093
Median	19,106	8,153	6,401	95,172	1,132	17,173	16,420	3,010	33,167	199,958	40,000	118,127	8,662	18,375	20,308	3,554	209,025	-11,020	138,382	34,495
Maximum	19,106	8,153	7,643	98,904	1,132	17,173	16,420	4,480	35,653	203,961	40,000	133,365	17,586	18,506	21,148	3,675	219,705	14,757	142,223	108,507
Minimum	19,106	8,153	6,116	93,296	1,098	11,822	16,000	0	32,459	197,026	35,000	90,257	4,808	18,157	18,218	3,065	188,349	-20,536	136,042	-208,143

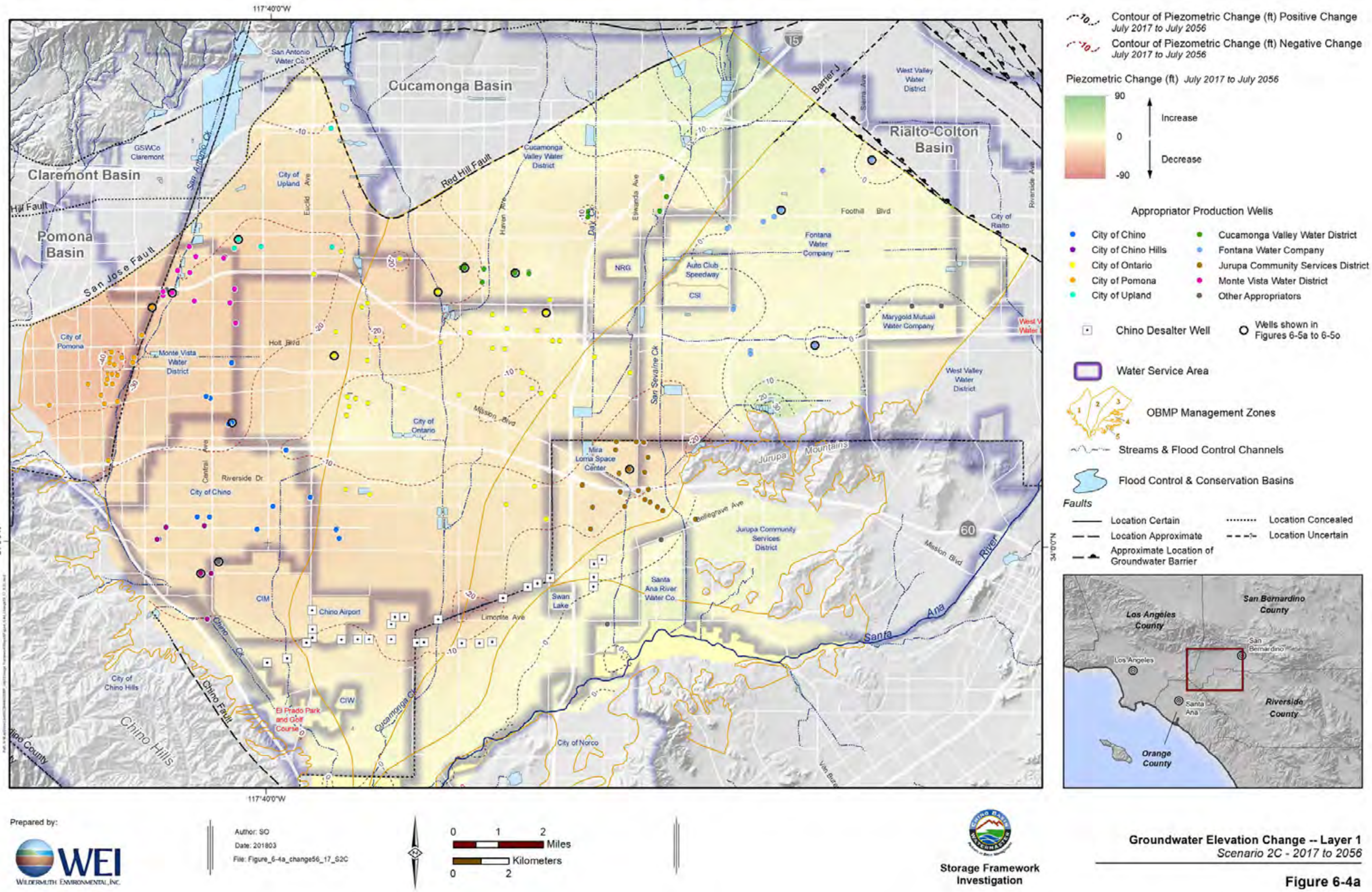
Table_3-5_WB_Scen1A_20180924.xlsx -- Chino_Scenario1A
Created 11/1/2017
Printed on 9/24/2018

FIGURE 4.7-10



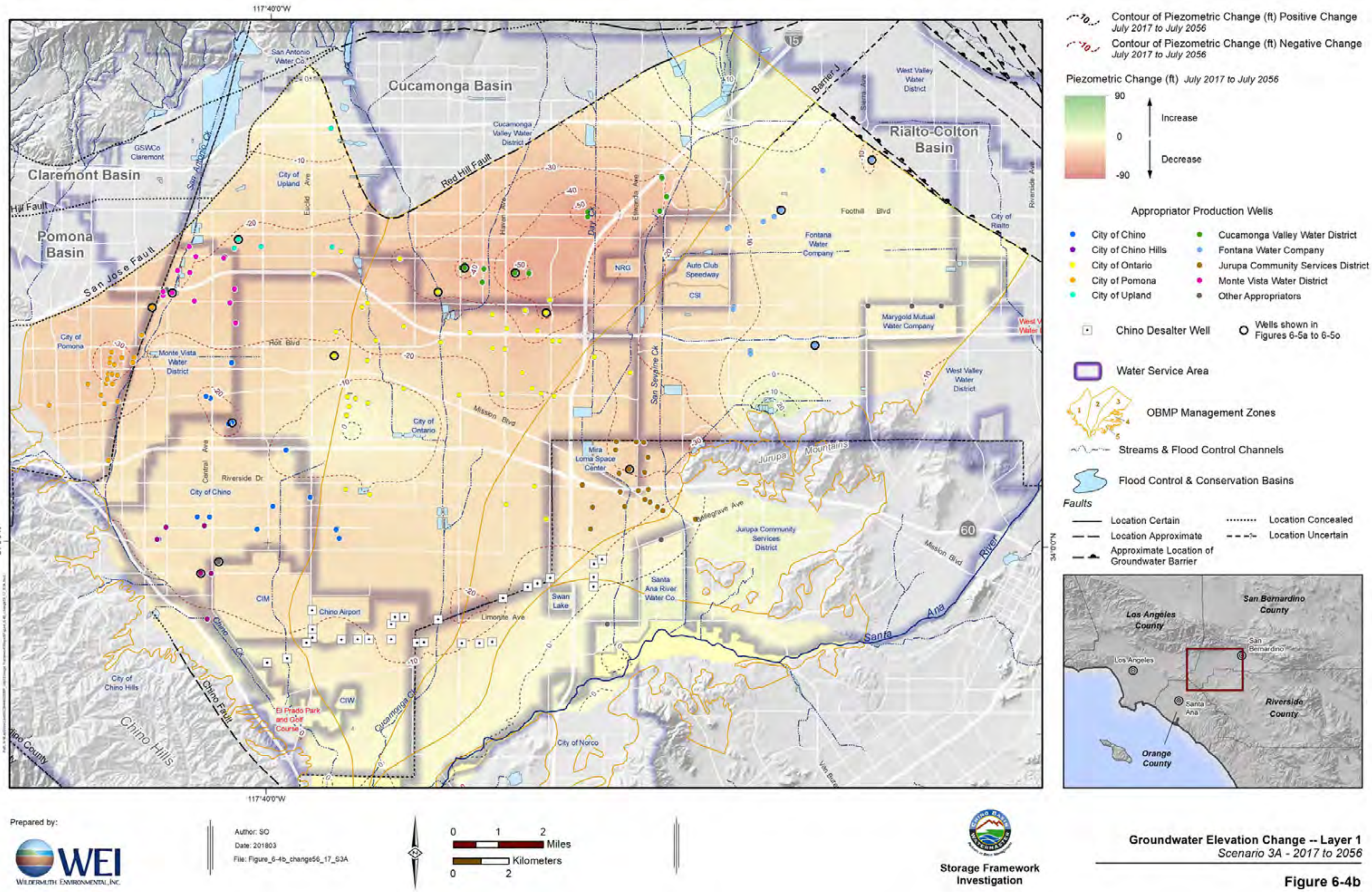
Contour of Piezometric Change (ft) Positive Change July 2017 to July 2050
Contour of Piezometric Change (ft) Negative Change July 2017 to July 2050
Piezometric Change (ft) July 2017 to July 2050
90
0
-90
Increase
Decrease
Appropriative Pool Pumping Wells
City of Chino
City of Chino Hills
City of Ontario
City of Pomona
City of Upland
Cucamonga Valley Water District
Fontana Water Company
Jurupa Community Services District
Monte Vista Water District
Other Appropriators
Chino Desalter Well
Water Service Area
OBMP Management Zones
Streams & Flood Control Channels
Flood Control & Conservation Basins
Faults
Location Certain
Location Approximate
Approximate Location of Groundwater Barrier
Location Concealed
Location Uncertain
Cucamonga Basin
Claremont Basin
Pomona Basin
Rialto-Colton Basin
Los Angeles County
San Bernardino County
Riverside County
Orange County
Prepared by:
WEI
Wildermuth Environmental, Inc.
Author: CS
Date: 201803
File: Figure_5-3a_1A_change17_50
Miles
Kilometers
Storage Framework Investigation
Groundwater Elevation Change -- Layer 1
Scenario 1A - 2017 to 2050
Figure 5-3a

FIGURE 4.7-11



Contour of Piezometric Change (ft) Positive Change July 2017 to July 2056
Contour of Piezometric Change (ft) Negative Change July 2017 to July 2056
Piezometric Change (ft) July 2017 to July 2056
90
0
-90
Increase
Decrease
Appropriator Production Wells
City of Chino
City of Chino Hills
City of Ontario
City of Pomona
City of Upland
Cucamonga Valley Water District
Fontana Water Company
Jurupa Community Services District
Monte Vista Water District
Other Appropriators
Chino Desalter Well
Wells shown in Figures 6-5a to 6-5o
Water Service Area
OBMP Management Zones
Streams & Flood Control Channels
Flood Control & Conservation Basins
Faults
Location Certain
Location Approximate
Approximate Location of Groundwater Barrier
Location Concealed
Location Uncertain
Cucamonga Basin
Claremont Basin
Pomona Basin
Rialto-Colton Basin
Chino Hills
Prepared by:
WEI
Wildermuth Environmental, Inc.
Author: SO
Date: 201803
File: Figure_6-4a_change56_17_S2C
Miles
Kilometers
Storage Framework Investigation
Groundwater Elevation Change -- Layer 1
Scenario 2C - 2017 to 2056
Figure 6-4a

FIGURE 4.7-12



Contour of Piezometric Change (ft) Positive Change July 2017 to July 2056
Contour of Piezometric Change (ft) Negative Change July 2017 to July 2056
Piezometric Change (ft) July 2017 to July 2056
90
0
-90
Increase
Decrease
Appropriator Production Wells
City of Chino
City of Chino Hills
City of Ontario
City of Pomona
City of Upland
Cucamonga Valley Water District
Fontana Water Company
Jurupa Community Services District
Monte Vista Water District
Other Appropriators
Chino Desalter Well
Wells shown in Figures 6-5a to 6-5o
Water Service Area
OBMP Management Zones
Streams & Flood Control Channels
Flood Control & Conservation Basins
Faults
Location Certain
Location Approximate
Approximate Location of Groundwater Barrier
Location Concealed
Location Uncertain
Cucamonga Basin
Claremont Basin
Pomona Basin
Rialto-Colton Basin
Red Hill Fault
San Jose Fault
Chino Fault
Chino Hills
Jurupa Mountains
Santa Ana River
Los Angeles County
San Bernardino County
Riverside County
Orange County
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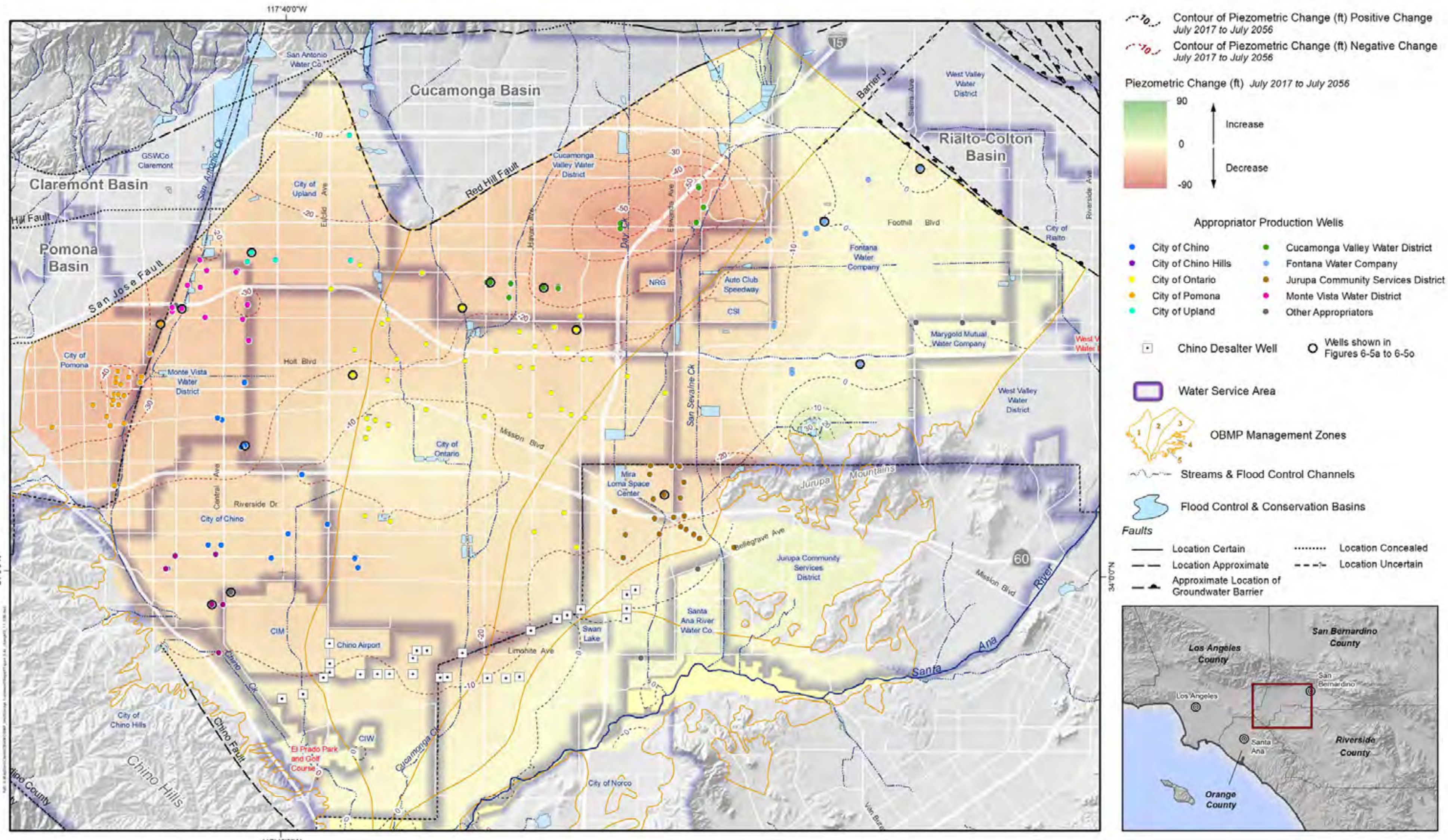
Wildermuth Environmental, Inc.
Author: SO
Date: 201803
File: Figure_6-4b_change56_17_S3A
Miles
Kilometers
Storage Framework Investigation
Groundwater Elevation Change -- Layer 1
Scenario 3A - 2017 to 2056
Figure 6-4b

FIGURE 4.7-13



Prepared by:

WEI Wildermuth Environmental, Inc.

Author: SO
Date: 201803
File: Figure_6-4c_change56_17_S3B

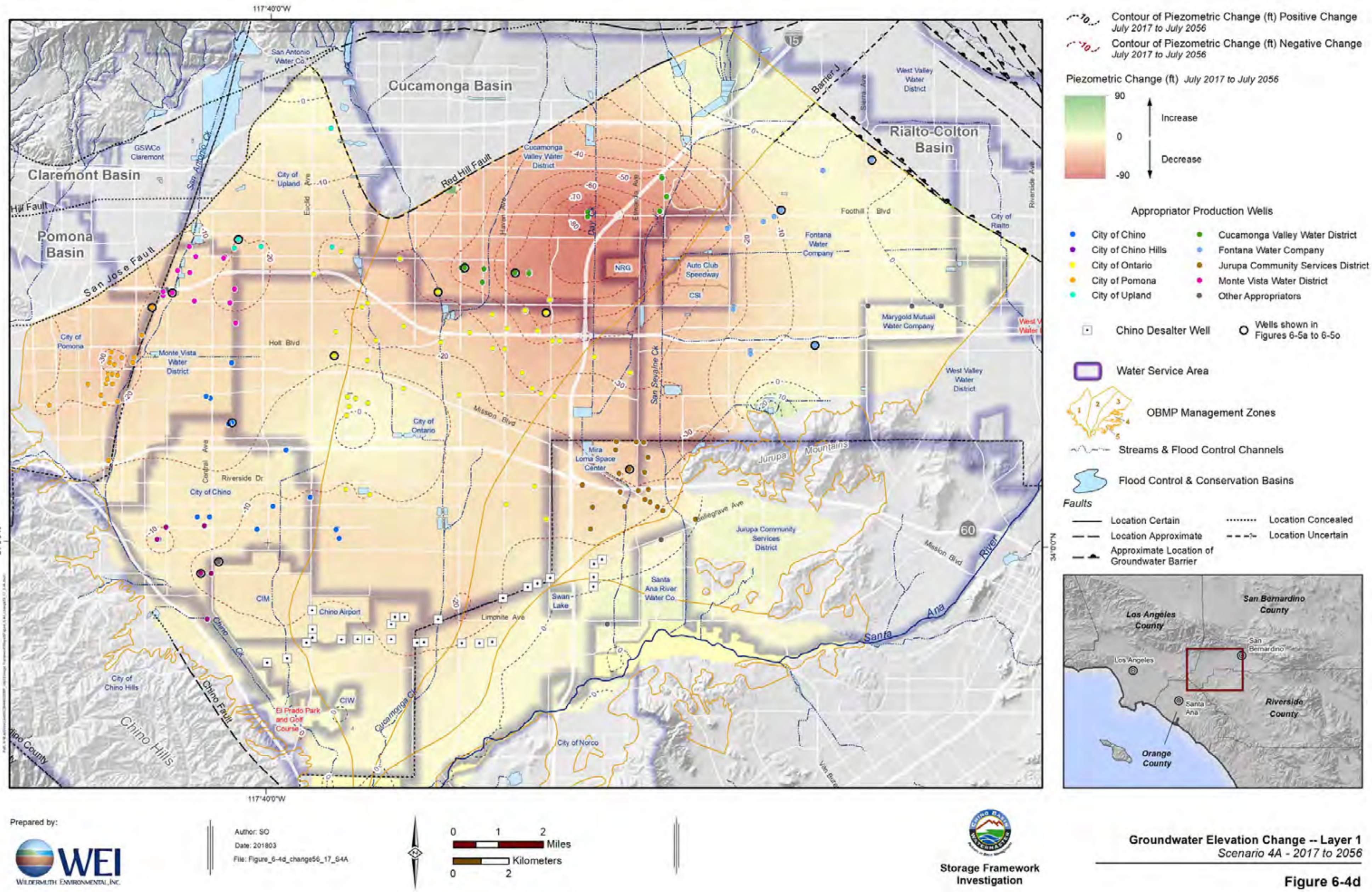
0 1 2 Miles
0 2 Kilometers

Storage Framework Investigation

Groundwater Elevation Change -- Layer 1
Scenario 3B - 2017 to 2056

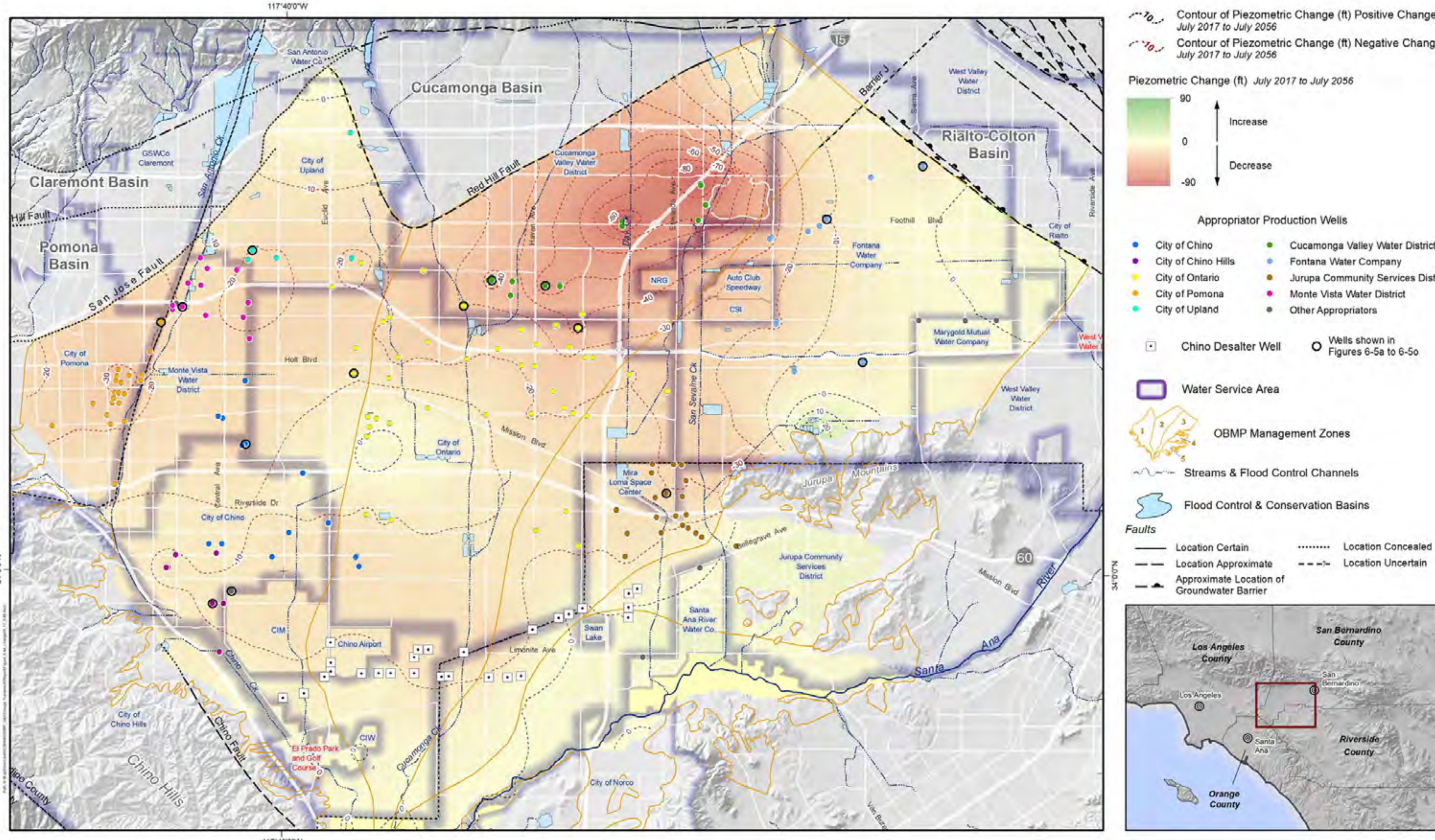
Figure 6-4c

FIGURE 4.7-14



Cucamonga Basin
Rialto-Colton Basin
Claremont Basin
Pomona Basin
Contour of Piezometric Change (ft) Positive Change July 2017 to July 2056
Contour of Piezometric Change (ft) Negative Change July 2017 to July 2056
Piezometric Change (ft) July 2017 to July 2056
90
0
-90
Increase
Decrease
Appropriator Production Wells
City of Chino
City of Chino Hills
City of Ontario
City of Pomona
City of Upland
Cucamonga Valley Water District
Fontana Water Company
Jurupa Community Services District
Monte Vista Water District
Other Appropriators
Chino Desalter Well
Wells shown in Figures 6-5a to 6-5o
Water Service Area
OBMP Management Zones
Streams & Flood Control Channels
Flood Control & Conservation Basins
Faults
Location Certain
Location Approximate
Approximate Location of Groundwater Barrier
Location Concealed
Location Uncertain
Los Angeles County
San Bernardino County
Riverside County
Orange County
Prepared by:
WEI
Wildermuth Environmental, Inc.
Author: SO
Date: 201803
File: Figure_6-4d_change56_17_S4A
Miles
Kilometers
Storage Framework Investigation
Groundwater Elevation Change -- Layer 1
Scenario 4A - 2017 to 2056
Figure 6-4d

FIGURE 4.7-15



Prepared by:

WEI
Wildermuth Environmental, Inc.

Author: SO
Date: 201803
File: Figure_6-4e_change56_17_S4B

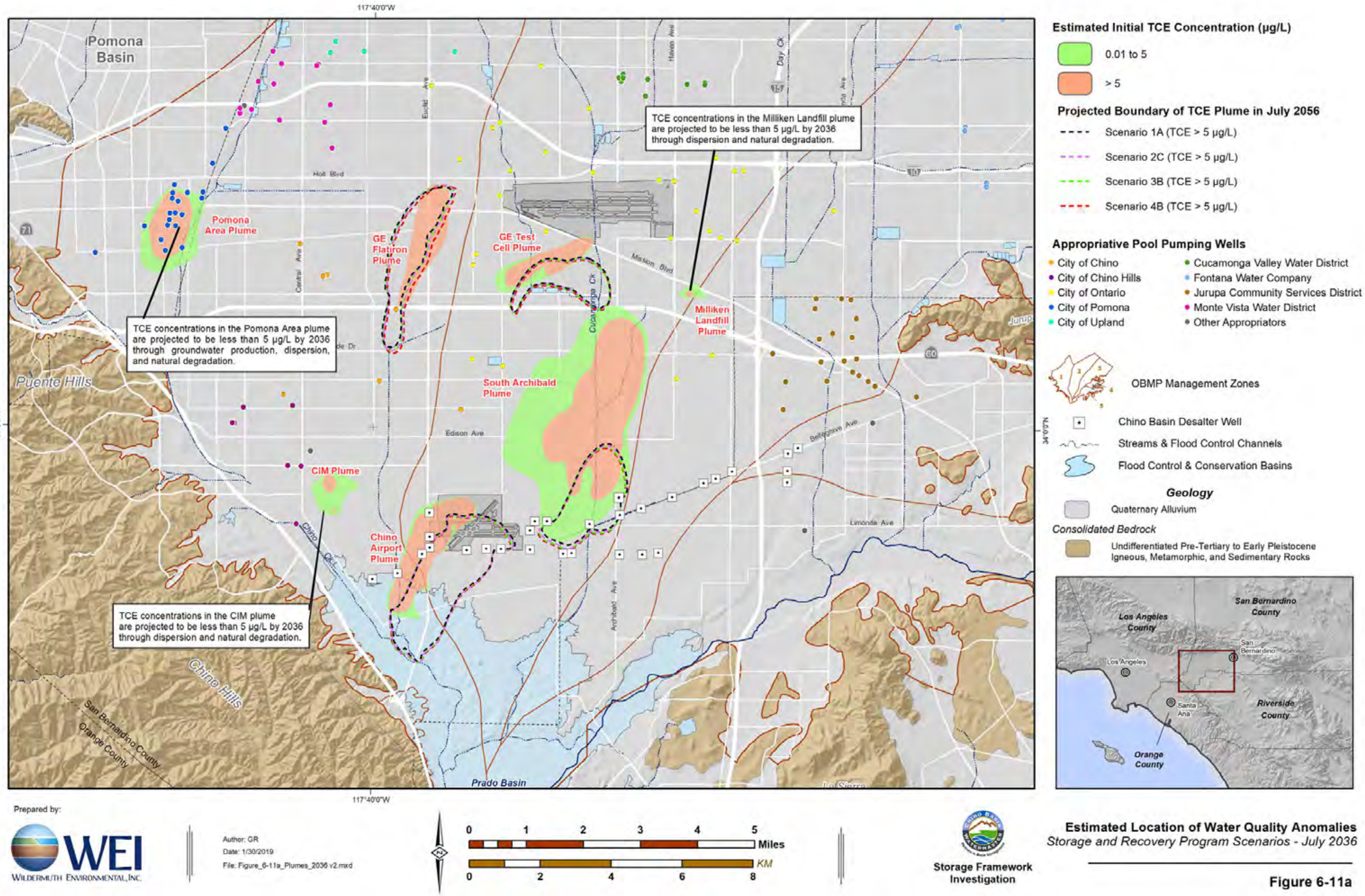
0 1 2 Miles
0 2 Kilometers

Storage Framework Investigation

Groundwater Elevation Change -- Layer 1
Scenario 4B - 2017 to 2056

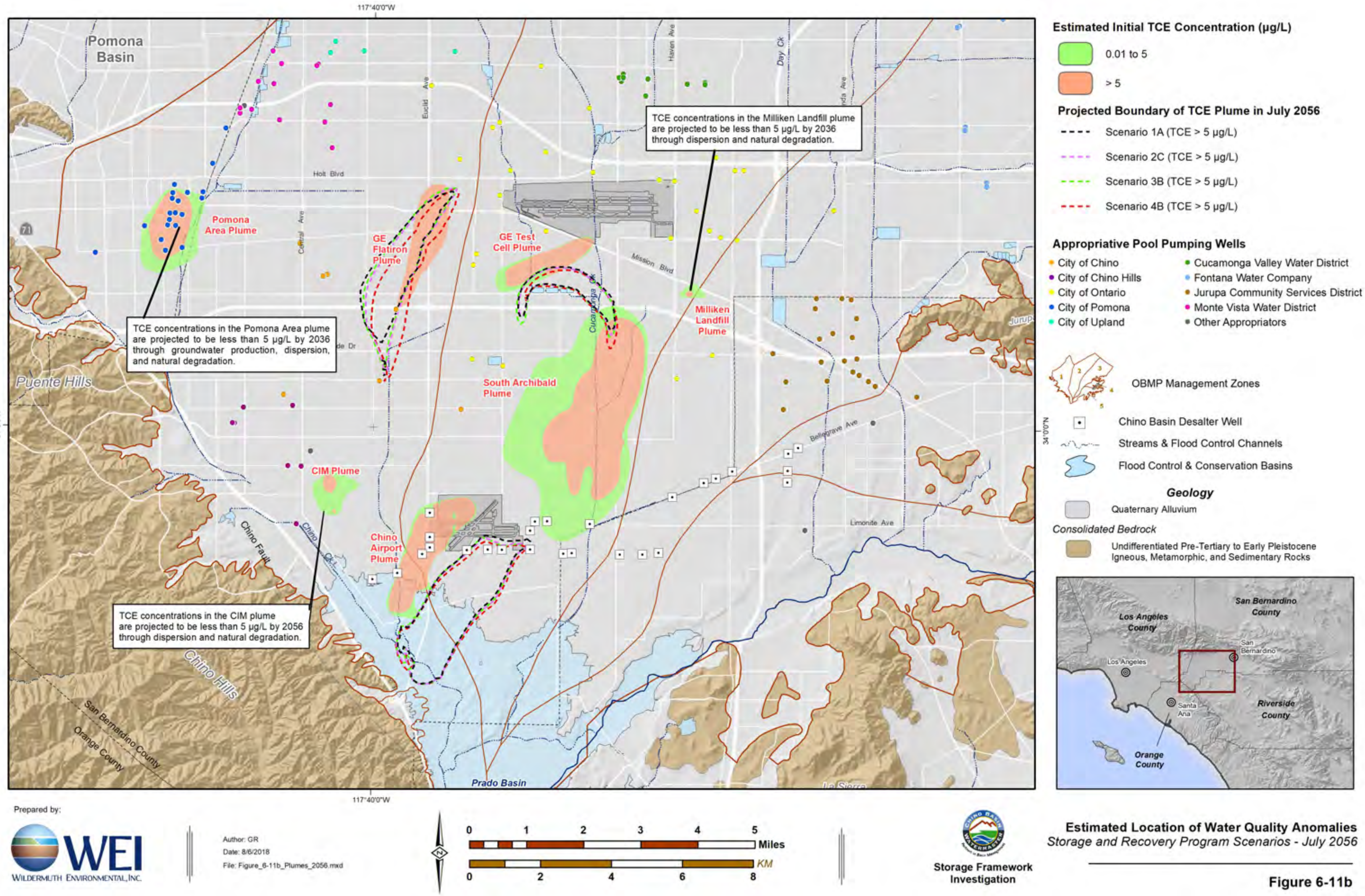
Figure 6-4e

FIGURE 4.7-16



Estimated Initial TCE Concentration (µg/L)
0.01 to 5
> 5
Projected Boundary of TCE Plume in July 2056
Scenario 1A (TCE > 5 µg/L)
Scenario 2C (TCE > 5 µg/L)
Scenario 3B (TCE > 5 µg/L)
Scenario 4B (TCE > 5 µg/L)
Appropriative Pool Pumping Wells
City of Chino
City of Chino Hills
City of Ontario
City of Pomona
City of Upland
Cucamonga Valley Water District
Fontana Water Company
Jurupa Community Services District
Monte Vista Water District
Other Appropriators
OBMP Management Zones
Chino Basin Desalter Well
Streams & Flood Control Channels
Flood Control & Conservation Basins
Geology
Quaternary Alluvium
Consolidated Bedrock
Undifferentiated Pre-Tertiary to Early Pleistocene Igneous, Metamorphic, and Sedimentary Rocks
Pomona Basin
Puente Hills
Chino Hills
Prado Basin
San Bernardino County
Orange County
Pomona Area Plume
GE Flatiron Plume
GE Test Cell Plume
Milliken Landfill Plume
South Archibald Plume
CIM Plume
Chino Airport Plume
TCE concentrations in the Milliken Landfill plume are projected to be less than 5 µg/L by 2036 through dispersion and natural degradation.
TCE concentrations in the Pomona Area plume are projected to be less than 5 µg/L by 2036 through groundwater production, dispersion, and natural degradation.
TCE concentrations in the CIM plume are projected to be less than 5 µg/L by 2036 through dispersion and natural degradation.
Holt Blvd
Mission Blvd
Edison Ave
Limonite Ave
Bellegrave Ave
Euclid Ave
Central Ave
Archibald Ave
Haven Ave
Cucamonga Ck
Day Ck
Chino Ck
117°40'0"W
34°0'0"N
Los Angeles County
San Bernardino County
Riverside County
Orange County
Los Angeles
San Bernardino
Santa Ana
Prepared by:
WEI
Wildermuth Environmental, Inc.
Author: GR
Date: 1/30/2019
File: Figure_6-11a_Plumes_2036 v2.mxd
0 1 2 3 4 5 Miles
0 2 4 6 8 KM
Storage Framework Investigation
Estimated Location of Water Quality Anomalies
Storage and Recovery Program Scenarios - July 2036
Figure 6-11a

FIGURE 4.7-17



117°40'0"W
Pomona Basin
Pomona Area Plume
GE Flatiron Plume
GE Test Cell Plume
Milliken Landfill Plume
South Archibald Plume
CIM Plume
Chino Airport Plume
Puente Hills
Chino Hills
Chino Fault
San Bernardino County
Orange County
Prado Basin
Holt Blvd
Mission Blvd
Bellegrave Ave
Limonite Ave
Euclid Ave
Central Ave
Haven Ave
Day Ck
Cucamonga Ck
Chino Ck
34°0'0"N
TCE concentrations in the Milliken Landfill plume are projected to be less than 5 µg/L by 2036 through dispersion and natural degradation.
TCE concentrations in the Pomona Area plume are projected to be less than 5 µg/L by 2036 through groundwater production, dispersion, and natural degradation.
TCE concentrations in the CIM plume are projected to be less than 5 µg/L by 2056 through dispersion and natural degradation.
Estimated Initial TCE Concentration (µg/L)
0.01 to 5
> 5
Projected Boundary of TCE Plume in July 2056
Scenario 1A (TCE > 5 µg/L)
Scenario 2C (TCE > 5 µg/L)
Scenario 3B (TCE > 5 µg/L)
Scenario 4B (TCE > 5 µg/L)
Appropriative Pool Pumping Wells
City of Chino
City of Chino Hills
City of Ontario
City of Pomona
City of Upland
Cucamonga Valley Water District
Fontana Water Company
Jurupa Community Services District
Monte Vista Water District
Other Appropriators
OBMP Management Zones
Chino Basin Desalter Well
Streams & Flood Control Channels
Flood Control & Conservation Basins
Geology
Quaternary Alluvium
Consolidated Bedrock
Undifferentiated Pre-Tertiary to Early Pleistocene Igneous, Metamorphic, and Sedimentary Rocks
Los Angeles County
San Bernardino County
San Bernardino
Los Angeles
Santa Ana
Riverside County
Orange County
Prepared by:
WEI
Wildermuth Environmental, Inc.
Author: GR
Date: 8/6/2018
File: Figure_6-11b_Plumes_2056.mxd
0 1 2 3 4 5 Miles
0 2 4 6 8 KM
Storage Framework Investigation
Estimated Location of Water Quality Anomalies
Storage and Recovery Program Scenarios - July 2056
Figure 6-11b

4.8 TRIBAL CULTURAL RESOURCES

4.8.1 Introduction

This subchapter evaluates the potential environmental impacts to tribal cultural resources from implementation of the proposed project. In response to the AB 52 consultation initiated in January 2020, the three tribes that were notified (Gabrieleño, Morongo, and San Manuel) requested consultation. IEUA Staff initiated consultation and reached agreement with all three tribes to incorporate mitigation to address implementation of specific projects under the OBMPU as they are proposed. The Tribes requested updated archaeological evaluations in line with current standards and requested the opportunity to participate in the updated evaluations as well as an opportunity to monitor ground-disturbing activities on native soil under site specific circumstances.

4.8.2 Regulatory Setting

Federal, State, and local laws, regulations, plans, or guidelines that are applicable to the proposed project are summarized below.

4.8.2.1 Federal Regulations

4.8.2.1.1 Archaeological Resources Protection Act
The Archaeological Resources Protection Act of 1979 regulates the protection of archaeological resources and sites which are on Federal lands and Indian lands.

4.8.2.1.2 Native American Graves Protection and Repatriation Act
The Native American Graves Protection and Repatriation Act (NAGPRA) is a federal law passed in 1990 that provides a process for museums and Federal agencies to return certain Native American cultural items, such as human remains, funerary objects, sacred objects, or objects of cultural patrimony, to lineal descendants, and culturally affiliated Indian tribes.

4.8.2.2 State

4.8.2.2.1 Public Resources Code
Archaeological resources are protected pursuant to a wide variety of state policies and regulations enumerated under the California Public Resources Code. In addition, cultural resources are recognized as a non-renewable resource and therefore receive protection under the California Public Resources Code and CEQA.

- California Public Resources Code 5097.9–5097.991 provides protection to Native American historical and cultural resources, and sacred sites and identifies the powers and duties of the Native American Heritage Commission (NAHC). It also requires notification to descendants of discoveries of Native American human remains and provides for treatment and disposition of human remains and associated grave goods.

- California Public Resources Code 5097.9 states that no public agency or private party on public property shall “interfere with the free expression or exercise of Native American Religion.” The code further states that:

  > No such agency or party [shall] cause severe or irreparable damage to any Native American sanctified cemetery, place of worship, religious or ceremonial site, or sacred

> shrine…except on a clear and convincing showing that the public interest and necessity so require. County and city lands are exempt from this provision, except for parklands larger than 100 acres.

4.8.2.2.2 Health and Safety Code

The discovery of human remains is regulated per California Health and Safety Code Section 7050.5, which states that:

> In the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation…until the coroner…has determined…that the remains are not subject to… provisions of law concerning investigation of the circumstances, manner and cause of any death, and the recommendations concerning the treatment and disposition of the human remains have been made to the person responsible…. The coroner shall make his or her determination within two working days from the time the person responsible for the excavation, or his or her authorized representative, notifies the coroner of the discovery or recognition of the human remains. If the coroner determines that the remains are not subject to his or her authority and…has reason to believe that they are those of a Native American, he or she shall contact, by telephone within 24 hours, the Native American Heritage Commission.

4.8.2.2.3 Senate Bill 18

Prior to the enactment of Senate Bill 18 (SB 18; California Government Code Sections 65352.3 et seq.) related to traditional tribal cultural places (TTCP) in 2004, state law provided limited protection for Native American prehistoric, archaeological, cultural, spiritual, and ceremonial places. These places may include sanctified cemeteries, religious, ceremonial sites, shrines, burial grounds, prehistoric ruins, archaeological or historic sites, Native American rock art inscriptions, or features of Native American historic, cultural, and sacred sites.

SB 18 placed new requirements upon local governments for developments within or near TTCP. SB 18 requires local jurisdictions to provide opportunities for involvement of California Native Americans tribes in the land planning process for the purpose of preserving traditional tribal cultural places. The Final Tribal Guidelines recommends that the NAHC provide written information as soon as possible but no later than 30 days to inform the lead agency if the proposed project is determined to be in proximity to a TTCP and another 90 days for tribes to respond to if they want to consult with the local government to determine whether the project would have an adverse impact on the TTCP. There is no statutory limit on the consultation duration. Forty-five days before the action is publicly considered by the local government council, the local government refers action to agencies, following the CEQA public review time frame. The CEQA public distribution list may include tribes listed by the NAHC who have requested consultation or it may not. If the NAHC, the tribe, and interested parties agree upon the mitigation measures necessary for the proposed project, it would be included in the project's EIR. If both the lead agency and the tribe agree that adequate mitigation or preservation measures cannot be taken, then neither party is obligated to take action.

SB 18 requires a city or county to consult with the NAHC and any appropriate Native American tribe prior to the adoption, revision, amendment, or update of a city's or county's general plan. While SB 18 does not specifically mention consultation or notice requirements for adoption of a water basin management program such as the OBMPU. In addition, SB 18 provides a new definition of TTCP that requires a traditional association of the site with Native American traditional beliefs, cultural practices, or ceremonies or the site must be shown to actually have been used for activities related to traditional beliefs, cultural practices, or ceremonies. Previously, the site was defined to require only an association with traditional beliefs, practices, lifeways, and ceremonial activities. In addition, SB 18 law amended Civil Code § 815.3 and added California Native American tribes to the list of entities that can acquire and hold conservation easements for the purpose of protecting their cultural places.

4.8.2.2.4 Assembly Bill 52

The Native American Historic Resource Protection Act (AB 52) took effect July 1, 2015, and incorporates tribal consultation and analysis of impacts to tribal cultural resources (TCR) into the CEQA process. It requires TCRs to be analyzed like any other CEQA topic and establishes a consultation process for lead agencies and California tribes. Projects that require a Notice of Preparation of an EIR or Notice of Intent to adopt a ND or MND on or after July 1st are subject to AB 52. A significant impact on a TCR is considered a significant environmental impact, requiring feasible mitigation measures.

TCRs must have certain characteristics:

1) Sites, features, places, cultural landscapes (must be geographically defined), sacred places, and objects with cultural value to a California Native American tribe that are either included or determined to be eligible for inclusion in the California Register of Historic Resources or included in a local register of historical resources. (PRC § 21074(a)(1))

2) The lead agency, supported by substantial evidence, chooses to treat the resource as a TCR. (PRC § 21074(a)(2))

The first category requires that the TCR qualify as a historical resource according to PRC Section 5024.1. The second category gives the lead agency discretion to qualify that resource—under the conditions that it support its determination with substantial evidence and consider the resource's significance to a California tribe. The following is a brief outline of the process (PRC §§ 21080.3.1–3.3).

1) A California Native American tribe asks agencies in the geographic area with which it is traditionally and culturally affiliated to be notified about projects. Tribes must ask in writing.

2) Within 14 days of deciding to undertake a project or determining that a project application is complete, the lead agency must provide formal written notification to all tribes who have requested it.

3) A tribe must respond within 30 days of receiving the notification if it wishes to engage in consultation.

4) The lead agency must initiate consultation within 30 days of receiving the request from the tribe.

5) Consultation concludes when both parties have agreed on measures to mitigate or avoid a significant effect to a TCR, OR a party, after a reasonable effort in good faith, decides that mutual agreement cannot be reached.

6) Regardless of the outcome of consultation, the CEQA document must disclose significant impacts on TCRs and discuss feasible alternatives or mitigation that avoid or lessen the impact.

4.8.3 Existing Conditions

The Gabrieleño Band of Mission Indians - Kizh Nation, Morongo Band of Mission Indians, and San Manuel Band of Mission Indians responded to IEUA's consultation requests. All three Tribes requested continued participation with this project's CEQA process and future project implemented under the OBMPU. Concerns expressed include the following: accidental exposure of subsurface cultural resources and proper management of such resources; concerns over exposure of human remains and proper management; and presence of Native American monitors during future ground disturbing activities. Through incorporation of mitigation measures provided below, IEUA concludes that the requests of the Tribes will be met under the OBMPU umbrella.

4.8.3.1 Prehistory/Ethnohistory

The Chino Basin region lies mostly within the traditional territory of the Gabrieleño, a Native American group believed to have been the most populous and most powerful ethnic nationality in aboriginal southern California. Gabrieleño territory was centered in the Los Angeles Basin, but their influence spread as far as the San Joaquin Valley, the Colorado River, and Baja California. The Gabrieleño's territorial claim in the Riverside-San Bernardino County portion of the planning area overlapped another prominent Native American group, the Serrano, whose traditional homeland was centered in the San Bernardino Mountains, including the slopes and lowlands on the northern and southern flanks of the mountains and extending eastward as far as present-day Twentynine Palms.

Depending on the natural environment in which they were located, native groups adopted different types of subsistence economy, although they were all based on gathering, hunting, and/or fishing. As a result, ancient occupation sites in valleys and foothills often contain portable mortars and pestles along with large projectile points, suggesting a reliance on fleshy nut foods and, to a lesser extent, large game animals. Sites found in the more arid areas in inland southern California often contain fragments of flat slab metates and plano-convex scrapers along with numerous projectile points, suggesting a reliance on seed resources, plant pulp, and smaller game animals. Temporary use sites tended to be clustered around bay/estuary environments and intermontane drainages such as the Santa Ana River.

The Gabrieleño came into contact with the Spanish as early as 1542, during the expedition of Juan Rodríguez Cabrillo. In the early Spanish period, several Indian villages or rancherías were known to be present amid the foothills and valleys on the southern slopes of the San Gabriel and San Bernardino Mountains. Beginning in 1769, the Spaniards took steps to colonize Gabrielino territory. In the process, most of the Gabrieleño people were incorporated into Mission San Gabriel and other missions in southern California.

Due to their location further inland and mostly at higher elevations, Spanish influence on Serrano lifeways was minimal until the 1810s, when an assistencia affiliated with Mission San Gabriel was established in present-day Loma Linda, on the southern edge of the Serrano territory. Between then and the end of the mission era in 1834, most of the Serrano in the San Bernardino Mountains were also moved to the nearby missions.

Due to introduced diseases, dietary deficiencies, and forceful reduction, Gabrielino and Serrano populations dwindled rapidly. By 1900, the Gabrieleño had almost ceased to exist as a culturally identifiable group, according to the leading ethnohistoric accounts. The Serrano, meanwhile, were mostly settled on the San Manuel and the Morongo Indian Reservations. In modern times, there has been a renaissance of Native American activism and cultural revitalization among the Gabrieleño and the Serrano. Tribal members today are keenly aware of archaeological sites and places of special cultural significance and maintain a high level of interest in how these sites are managed.

4.8.4 Thresholds of Significance

According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the Tribal Cultural Resources environment if the project would:

Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American Tribe, and that is:

- i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or
- ii) A resourced determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

4.8.5 Environmental Impacts

This subchapter evaluates the level of adverse impact to the tribal cultural resources that is forecast to occur if the OBMPU is implemented as proposed.

a) **Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American Tribe, and that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or**

b) **Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American Tribe, and that is a resourced determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?**

According to the findings in the cultural resources study (Subchapter 4.4), the proposed Project has a modest potential to impact (alter or destroy) a tribal cultural resource. Based on the research results summarized above and direct experience with the Gabrieleño, many of the

OBMPU infrastructure projects have a potential to expose subsurface resources. Mitigation is identified below that will be implemented by future OBMPU specific projects. These measures are intended to address concerns expressed by the Native Americans that responded to IEUA's AB 52 consultation process. Therefore, potentially significant impacts may affect tribal cultural resources, but with implementation of the mitigation identified below, such potential impacts can be minimized to a less than significant impact level.

4.8.6 Mitigation Measures

To minimize future impacts on tribal cultural resources the following mitigation measures will be implemented. These measures have been developed to implement as a hierarchy, with Measure **TCR-1** being the first level of mitigation implementation, Measure **TCR-2** the second level, and Measure **TCR-3** the third level to be implemented in conjunction with the "Cultural Resources Monitoring and Treatment Plans" (Plan) provided in Appendix 8, Volume 2. Two monitoring and treatment plans are provided in Appendix 8, Volume 2. The first is a generic plan based on information submitted by the San Manuel and the second, Gabrieleño submitted a separate monitoring and treatment plan for circumstances when the monitoring responsibilities are assigned to their Tribe.

TCR-1 ***Where a future discretionary project requiring a Negative Declaration or follow-on EIR is proposed within an existing facility that has been totally disturbed due to it undergoing past engineered site preparation (such as a well site, water treatment facility, or wastewater treatment plant site), the agency implementing the OBMPU project will notify the three Tribes under AB 52 but will point out that the project falls under the OBMPU evaluation and that the site is fully developed. No further cultural resources or TCR investigation will be conducted unless a Tribe identifies specific TCR resources/values at such site(s).***

TCR-2 ***Where a future discretionary project requiring a Negative Declaration or follow-on EIR is proposed at an undisturbed site, the agency implementing the OBMPU project will initiate AB 52 consultation and a records search at the appropriate California Historical Resources Information System (CHRIS) center with at least a 0.5-mile search radius. The Native American Heritage Commission (NAHC) shall also be contacted to identify tribal representatives to contact as part of a Phase 1 cultural resources investigation. Finally, a site-specific survey will be conducted by a qualified professional archaeologist. During the survey, the archaeologist shall engage the designated tribal representative(s) based on responses from the NAHC consultation among the three Tribes.***

TCR-3 ***If the AB 52 consultation results in a request to consult from one or more of the three Tribes, and the consultation results in a request for monitoring from one or more of the Tribes, the agency implementing the OBMPU project shall meet with the Tribe or Tribes and develop a "Cultural Resources Monitoring and Treatment Plan" (Plan) for the specific project. This Plan shall follow the general outline of one of the two Plans provided in Appendix 8 of this document. If more than one Tribe requests field monitoring participation, the agency shall ask the requesting Tribes to determine which one will provide the monitor(s), as only a single Tribe's monitor(s) shall be funded in the monitoring effort. If the Tribes cannot identify a single tribal monitor, the agency shall select a single tribal monitor to monitor a project after reviewing qualifications of the recommended monitors in light of the resources identified by the tribes. Monitoring activities and follow-on management of any***

discovered tribal cultural resources shall conducted be in accordance with the Cultural Resources Monitoring and Treatment Plan agreed upon for the specific project and specific project site.

Implementation of these measures will reduce potential tribal cultural resource impacts to a less than significant impact level.

4.8.7 Cumulative Impacts

As determined above, OBMPU implementation can proceed without causing any unavoidable significant adverse impacts to tribal cultural resources. Because the implementation of the proposed project is not forecast to cause any direct, significant adverse impact to any significant cultural resources with implementation of identified mitigation measures, the proposed project has no potential to make a cumulatively considerable contribution to tribal cultural resource impacts in the project area, i.e., the Chino Basin. Any tribal cultural resources discovered on a project site that would be adversely impacted by proposed future projects will be mitigated by implementing one of the three mitigation measures listed above. With implementation of these measures OBMPU projects are not forecast to cause or contribute to cumulatively considerable tribal cultural resource impacts.

4.8.8 Significant and Unavoidable Impacts

As determined above, no significant and unavoidable impacts to tribal cultural resources will occur as a result of implementing the proposed project.

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4.9 UTILITES AND SERVICE SYSTEMS

4.9.1 Introduction

This Subchapter evaluates the environmental impacts to the issue area of utilities and service systems, specifically pertaining to water supply and extension of infrastructure from implementation of the proposed Project: the Optimum Basin Management Program Update (OBMPU) Draft Subsequent EIR (DSEIR). The issues of wastewater, solid waste, and extension of wastewater, stormwater, and telecommunications infrastructure were addressed in the Initial Study as part of the NOP, provided as Subchapter 8.1 to this DSEIR. These topics will not be discussed further as part of this DSSEIR. Utilities within the Chino Basin are provided by a mix of public agencies, such as Inland Empire Utilities Agency (IEUA)—which is the lead agency for this project; the stakeholders within the Chino Basin; and also, private companies, such as Southern California Edison (SCE).

The following references were used in preparing this Subchapter of the DEIR.

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- City of Ontario, Urban Water Management Program, 2016
- City of Pomona, Urban Water Management Program, 2016
- City of Upland, Urban Water Management Program, 2016
- Cucamonga Valley Water District, Urban Water Management Program, 2016
- Fontana Water Company, Urban Water Management Program, 2016
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- Water Systems Consulting, Inc. [West Valley Water District et. al.], Sa Bernardino Valley Regional Urban Water Management Program, June 2017
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- SoCalGas, Company Profile website, Accessed November 14, 2018: https://www.socalgas.com/about-us/company-profile
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4.9.2 Utilities & Service Systems (Water, Energy, & Natural Gas): Environmental Setting

4.9.2.1 Water

Please refer to the discussion under Hydrology and Water Quality provided as Subchapter 4.7.

As stated under the project description, growth is one of the drivers shaping water and basin management. As urban land uses replace agricultural and vacant land uses, the water demands of the Chino Basin Parties are expected to increase. The table below summarizes the actual (2015) and projected water demands, water supply plans, and population through 2040. Total water demand is projected to grow from about 290,000 afy in 2015 to about 420,000 afy by 2040, an increase of about 130,000 afy. The projected growth in water demand through 2040 is driven by the Appropriative Pool Parties, some of which will serve new urban water demands created by the conversion of agricultural and vacant land uses to urban uses.

Table 4.9-1
AGGREGATE WATER SUPPLY PLAN FOR WATERMASTER PARTIES: 2015 TO 2040[1]

Water source	2015 (Actual)	2020	2025	2030	2035	2040
Volume (af)						
Chino Basin Groundwater	148,467	139,236	144,314	151,525	164,317	173,522
Non-Chino Basin Groundwater	51,398	55,722	61,741	63,299	64,991	66,783
Local Surface Water	8,108	19,653	19,653	19,653	19,653	19,653
Imported Water from Metropolitan	53,784	90,444	97,657	103,684	105,152	111,036
Other Imported Water	8,861	9,484	10,095	10,975	11,000	11,000
Recycled Water for Direct Reuse	17,554	23,678	24,323	26,910	30,451	33,953
Total	**288,171**	**338,218**	**357,782**	**376,046**	**395,564**	**415,947**
Percentage						
Chino Basin Groundwater	52%	41%	40%	40%	42%	42%
Non-Chino Basin Groundwater	18%	16%	17%	17%	16%	16%
Local Surface Water	3%	6%	5%	5%	5%	5%
Imported Water from Metropolitan	19%	27%	27%	28%	27%	27%
Other Imported Water	3%	3%	3%	3%	3%	3%
Recycled Water for Direct Reuse	6%	7%	7%	7%	8%	8%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
Population (million)*	1.95	2.07	2.21	2.38	2.57	2.73

*The population projection is based on the service area population of all Chino Basin Appropriative Pool agencies. For some Appropriative Pool agencies, the service areas expand outside of the Chino Basin.

4.9.2.1.1 Water Agencies

Inland Empire Utilities Agency

IEUA is a regional wholesale water supplier, providing imported water from Metropolitan Water District of Southern California (MWD) and a regional wastewater treatment agency. IEUA provides the wholesale imported water from MWD to seven retail agencies: the cities of Chino, Chino Hills,

[1] Sourced from: WEI. (2019). *Final 2020 Storage Management Plan*. December 2019.

Ontario, and Upland; Cucamonga Valley Water District (CVWD), located in the City of Rancho Cucamonga; Fontana Water Company (FWC), located in the City of Fontana; and the Monte Vista Water District (MVWD), located in the City of Montclair. The IEUA has historically delivered up to approximately 70,000 acre-feet of imported water supplies to the local retail water supply agencies annually. IEUA serves approximately 875,000 people over 242 square miles in western San Bernardino County (IEUA, 2016).

Cucamonga Valley Water District

CVWD provides treated potable water and wastewater services to the City of Rancho Cucamonga, portions of the cities of Upland, Ontario and Fontana, and some unincorporated areas of San Bernardino County. It serves a population of over 190,000 customers with approximately 45,000 water connections to meet an average daily demand of approximately 50 million gallons per day (MGD) (CVWD, 2016).

Fontana Water Company

FWC serves the cities of Fontana, portions of Rialto and Rancho Cucamonga, and adjacent unincorporated territory in San Bernardino County. FWC serves a population of more than 209,000 within its 52-square miles service area. A portion of the water supply is purchased from CVWD, and water from the State Water Project is purchased from IEUA (FWC, 2016).

Monte Vista Water District

MVWD is a county water district that provides retail and wholesale water supply services to a population of over 130,000 within its 30-square mile service area. It serves the communities of Montclair, Chino Hills, portions of Chino, as well as the unincorporated areas lying between the cities of Pomona, Chino Hills, Chino and Ontario. MVWD provides water to meet an average daily demand of 17.9 MGD within its service area (MVWD, 2016).

City of Chino Hills Water Department

The City of Chino Hills Water Department has multiple sources of water supply: groundwater, MVWD, the Water Facilities Authority (WFA), Chino Desalter Authority (CDA), and IEUA, These five sources provide the City of Chino Hills with over 41 MGD capacity. Chino Hills' water system includes more than 200 miles of water lines and 21,000 individual water connections. This water supply serves Chino Hills and some portions of the City of Chino (City of Chino Hills, 2011).

City of Chino Utilities Department

The City of Chino receives and distributes water from either MVWD or the Chino Hills Water Department as described above (City of Chino, 2016).

City of Ontario Municipal Utilities Company

The City of Ontario serves 13 billion gallons of water annually to the over 170,000 residents and 6,000 businesses. Ontario operates 24 active groundwater wells, 572 miles of potable and recycled water pipelines, and 12 water reservoirs that store 75 million gallons of water. Approximately 80 percent of Ontario's drinking water comes from local groundwater sources, including 17 percent of the total supply from two water treatment plants operated by the CDA. The remaining 20 percent of Ontario's water is imported surface water supplied through the SWP. Recycled water is provided for non-potable uses; more than 200 recycled water service connections have been completed, supplying nearly 10 percent of Ontario's total water demand (City of Ontario, 2016).

City of Upland Water Department

The City of Upland supplies over 75,000 residents. The City's water supplies includes groundwater from three groundwater basins, local surface water from San Antonio Creek, and imported water from MWD conveyed through IEUA, an MWD member agency, to Water Facilities Authority (WFA). Local groundwater and surface water supplies are available directly to the City or through the City's shareholder ownership in two small water companies. Recycled water is provided by IEUA. Water demands are currently approximately 20,000 acre feet per year (afy) with a projected demand of 23,800 acre-feet by 2035 (City of Upland, 2016).

City of Norco

The City of Norco is the sole water purveyor for the residents and businesses of Norco. The City's population was estimated at approximately 25,890 in 2015. The total supplies for the City between 2010 and 2014 averaged 8,000 afy. In FY 2014-15 the City produced a total of 7,138.3 af, of which 2,126.3 af was produced from local groundwater sources, 3,871.5 af was purchased from the Arlington Desalter, 1,040.4 af was purchased from the Chino Desalter Authority, and 100.1 af from imported water supplies Western Municipal Water District (WMWD). Water demands were approximately 7,138.3 afy in 2015 with a projected demand of 6,956 acre-feet by 2040. The recycled water demand is anticipated to be 844 afy by 2040 (City of Norco, 2015).

City of Pomona

The City of Pomona is the seventh largest city in Los Angeles County, with a population of over 151,000 residents. Pomona's potable water demands for 2015 were 117 GPCD, which is well below the 2015 conservation measure target. In 2020, it is anticipated that the supply will total 31,911 af, while the demand will total 27,827 af. By 2040, the supply is anticipated to grow to 37,183 af, with a demand of 35,371. (City of Pomona, 2016)

Jurupa Community Services District

JCSD's 2015 population was 119,034 persons and the anticipated ultimate build-out population is about 159,000 persons by 2039. During CY 2015, JCSD delivered 21,106 af of potable water and 539 AF of non- potable water to 29,669 meters for a total of 21,645 af. JCSD primarily relies on groundwater pumped from the Chino Basin; however, they also obtain water from the Chino Desalter Authority and may obtain water from WMWD in the future. By 2040, the District's total annual water demand (potable and non-potable) is anticipated to be approximately 37,000 acre-feet. (Jurupa Community Services District, 2016)

West Valley Water District

WVWD served a population of 80,161 persons in 2015. WVWD utilizes water from five groundwater basins and treats surface water from Lytle Creek and SWP water at its 14.4-mgd Oliver P. Roemer Water Filtration Facility to serve over 20,000 water service connections. Water demands were approximately 17,131 afy in 2015 with a projected demand of 27,312 acre-feet by 2040. (Water Systems Consulting, Inc. [West Valley Water District et. al.], June 2017)

Three Valleys Municipal Water District

Three Valleys Municipal Water District (TVMWD) is a wholesale water supplier providing supplementary supply to its retail member agencies. Except for a small percentage (approximately 7%) of groundwater supply, TVMWD's primary resource is import water from the MWD. TVMWD is one of 26 member agencies of the MWD. In turn, TVWMD has retail member agencies within its service area to which the District supplies imported water to these retail agencies' individual distribution systems. It is the retail agencies that deliver water directly to the consumer and end users throughout out the entire service area of TVMWD. The population served by the District in 2015 was 525,000 persons, which is projected to grow to 638,700 persons by 2040. Water demands were approximately 63,976.2 afy in 2015 (only 4,946.4 af were generated by groundwater) with a projected demand of 74,360 acre-feet by 2040. (Three Valleys Municipal Water District, 2015)

Western Municipal Water District
WMWD's water supplies consist primarily of purchased or imported water. The majority of this water is purchased from MWD. WMWD's demand for water in 2015 was 74,135 af, which breaks down to 23,357 af of WMWD retail, 50,778 of other imported water agencies, and 1,304 af of recycled water. By 2040, the total demand is projected to be 132,999 af (39,004 WMWD retail, 91,295 other imported Water Agencies, and 2,700 recycled water). (Western Municipal Water District, 2016)

Water Facilities Authority
The Water Facilities Authority (Authority) is a Joint Powers Authority governed by its member agencies: Chino, Chino Hills, Monte Vista Water District, Ontario, and Upland. Its service area covers approximately 135 square miles within the upper Santa Ana River watershed. The Authority owns and operates a surface water treatment plant called Agua de Lejos Treatment Plant, which began operations in 1988 and is located in the City of Upland. This treatment plant treats and disinfects imported water supplies, primarily state project water, purchased from Metropolitan Water District to supplement local groundwater supplies. The treatment plant, located on sixteen acres in North Upland, has the capacity to treat and disinfect 81 mgd (million gallons per day). However, recent historical flows through the treatment plant is normally 40–50 mgd during the peak summer months and can be as low as 9-12 mgd. Agua de Lejos Treatment Plant receives imported surface water supplies from the State Water Project (SWP) from MWD through IEUA. Through its members, the Authority indirectly serves more than 450,000 people in the west-end of San Bernardino County.[2]

There are other private and mutual water companies in the Chino Basin, such as San Antonio Water Company, that also supply drinking water to residents within the Chino Basin.

4.9.2.2 Other Utilities: Electricity and Natural Gas

Please refer to the discussion under Subchapter 4.5, Energy, specifically <u>4.5.2 Existing Conditions</u>.

4.9.3 <u>Utilities & Service Systems (Water, Energy, & Natural Gas): Regulatory Setting</u>

For a comprehensive list of international, federal, state, and local Energy Standards, please refer to the discussion under Subchapter 4.5, Energy, specifically <u>4.5.3 Regulatory Setting</u>.

<u>Federal</u>

Clean Water Act
The Federal Water Pollution Control Act or Clean Water Act (CWA) serves to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. The CWA was created in 1972, and then amended in 1977, and again in 1987 when the NPDES program was created. NPDES requires a permit for discharge of pollutants from industrial sources and publicly owned

[2] Water Facilities Authority: http://www.wfajpa.org/

treatment works into navigable waters. The discharge must meet applicable requirements, which are outlined in the CWA and which reflect the need to meet federal effluent limitations and state water quality standards.

Section 303 (d) of the CWA states that each state shall identify those waters within its boundaries for which the effluent limitations required by section 301(b)(1)(A) and section 301 (b)(1)(B) are not stringent enough to implement any water quality standard applicable to such waters. The state shall establish a priority ranking for such waters, taking into account the severity of the pollution and the uses to be made of such water (see Section 3.9, *Hydrology and Water Quality*, of this EIR).

State

California Code of Regulations (CCR)

Pursuant to CCR Title 23, Division 3, Article 2 (Waste Classification and Management) and Article 3 (Waste Unit Classification and Siting), Class III (municipal solid waste) landfills are sited in accordance with criteria that are similar to those found in Subtitle D of RCRA. CCR Title 27 includes various regulations pertaining to siting, design, construction, and operation of solid waste landfills.

CCR Title 22, Division 4, Sections 60301 through 60355 (Articles 1 through 9), includes descriptions of overall allowable sources of and uses for recycled water, as well as specific use descriptions depending on treatments. Title 22 also includes specific treatment pathways including disinfection procedures, oxidation, soils and bed filter media, and requirements for impoundments. It covers use area requirements, water testing and analysis, and plant design and operational requirements.

Protection of Underground Infrastructure

The California Government Code Section 4216-4216.9 “Protection of Underground Infrastructure” requires an excavator to contact a regional notification center (e.g., Underground Services Alert or Dig Alert) at least two days prior to excavation of any subsurface installations. Any utility provider seeking to begin a project that could damage underground infrastructure can call Underground Service Alert, the regional notification center for southern California.

Underground Service Alert will notify the utilities that may have buried lines within 1,000 feet of the project. Representatives of the utilities are then notified and are required to mark the specific location of their facilities within the work area prior to the start of project activities in the area.

California Health and Safety Code

The California Health and Safety Code, Division 104, Part 12, Chapter 5, Article 2, Section 116815, requires all pipes carrying recycled water to be colored purple or wrapped in purple tape. This requirement stems from a concern in cross contamination and potential public health risks similar to those discussed for Title 17. It is also discussed in the California Health Laws Related to Recycled Water.

California Energy Action Plan II

The California Energy Action Plan II is the state’s principal energy planning and policy document (California Energy Commission, 2005, 2008). The plan identifies state-wide energy goals, describes a coordinated implementation plan for state energy policies, and identifies specific action areas to ensure that California’s energy is adequate, affordable, technologically advanced, and environmentally sound. In accordance with this plan, the first priority actions to address California's increasing energy demands are energy efficiency and demand response (i.e., reduction of customer energy usage during peak periods in order to address system reliability and support the best use of energy infrastructure). Additional priorities include the use of renewable sources of power and distributed generation (i.e., the use of relatively small power plants near or at centers of high demand). To the extent that these actions are unable to satisfy the increasing energy and capacity needs, clean and efficient fossil-fired generation is supported.

In 2002, California established its Renewable Portfolio Standard program,3 with the goal of increasing the percentage of renewable energy in the state's electricity mix to 20 percent by 2017. The California Energy Commission subsequently accelerated that goal to 2010, and further recommended increasing the target to 33 percent by 2020. Because much of electricity demand growth is expected to be met by increases in natural-gas-fired generation, reducing consumption of electricity and diversifying electricity generation resources are significant elements of plans to reduce natural gas demand.

Regional Water Quality Control Board (RWQCB)

The primary responsibility for the protection of water quality in California rests with the State Water Resources Control Board (SWRCB) and nine RWQCBs. The SWRCB sets statewide policy for the implementation of state and federal laws and regulations. The RWQCBs adopt and implement Water Quality Control Plans (Basin Plans) which recognize regional differences in natural water quality, actual and potential beneficial uses, and water quality problems associated with human activities. The program area is within the jurisdiction of the Santa Ana Region.

California Department of Water Resources (DWR)

The California DWR is a department within the California Resources Agency. The DWR is responsible for the State of California's management and regulation of water usage.

Senate Bills 610 (Chapter 643, Statutes of 2001) and 221 (Chapter 642, Statutes of 2001)

Senate Bill 610 and Senate Bill 221 are companion measures that seek to promote more collaborative planning among local water suppliers and cities and counties. They require that water supply assessments occur early in the land use planning process for all large-scale development projects. If groundwater is the proposed supply source, the required assessments must include detailed analyses of historic, current, and projected groundwater pumping and an evaluation of the sufficiency of the groundwater basin to sustain a new project's demands. They also require an identification of existing water entitlements, rights, and contracts and a quantification of the prior year's water deliveries. In addition, the supply and demand analysis must address water supplies during single and multiple dry years presented in five-year increments for a 20-year projection.

Local

The Chino Basin area encompasses multiple jurisdictions including unincorporated areas of San Bernardino County and seven incorporated cities. Each of these cities has its own General Plan and municipal code that identify goals and policies regarding utilities.

[3] The Renewable Portfolio Standard is a flexible, market-driven policy to ensure that the public benefits of wind, solar, biomass, and geothermal energy continue to be realized as electricity markets become more competitive. The policy ensures that a minimum amount of renewable energy is included in the portfolio of electricity resources serving a state or country. By increasing the required minimum amount over time, the Renewable Portfolio Standard puts the electricity industry on a path toward increasing sustainability.

4.9.4 Utilities & Service Systems (Water, Energy, & Natural Gas): Thresholds of Significance

According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if the project:

a) Would require or result in the relocation or construction of new or expanded water, electric power, or natural gas facilities, the construction or relocation of which could cause significant environmental effects?
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

No comments specific to this topic were received in response to the Notice of Preparation. No comments were received at the scoping meeting held for the proposed Project.

4.9.5 Utilities & Service Systems (Water, Energy, & Natural Gas): Project Impacts

a) Would require or result in the relocation or construction of new or expanded water, electric power, or natural gas facilities, the construction or relocation of which could cause significant environmental effects?

Water

The OBMPU includes the construction of the following types of facilities: ASR, injection, pumping, groundwater level monitoring, and groundwater quality wells and associated well housing; monitoring devices such as flow meters and extensometers; 550,000 LF of new pipelines; booster pump stations, reservoirs and minor appurtenances whose number have not yet been determined; 310 acres of new storage basins—several locations for which are within existing facilities; improvements to existing storage basin(s); 200 acres of flood MAR facilities; new MS4-compliance facilities; and expansion of the maximum storage space (safe storage capacity) to be used within the Chino Basin from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af between this range of storage; upgrades at IEUA's existing Treatment Plants (discussed in IEUA's 2017 FMP PEIR and therefore not analyzed herein); a new advanced water treatment plant (discussed in IEUA's 2017 FMP PEIR and therefore not analyzed herein); improvements to the WFA Agua de Lejos Treatment Plant; upgrades to the Chino Desalters; new groundwater treatment facilities at or near well sites and at regionally located sites; and, improvements to existing groundwater treatment facilities.

The development of the above facilities constitutes the construction of new and expansion or modifications to existing water infrastructure facilities. The environmental effects associated with the proposed project are documented throughout this DSEIR, including the Initial Study provided as Subchapter 8.2 of this DSEIR. As such, given that the proposed OBMPU is anticipated to result in a significant and unavoidable impact related to greenhouse gas from construction of the OBMPU facilities, the construction of the proposed water facilities associated with the OBMPU is anticipated to cause a significant impact. Therefore, impacts under this issue are considered significant and unavoidable.

Combined Project Categories

Level of Significance Before Mitigation: Potentially Significant

*Mitigation Measures: Mitigation measures designed to reduce GHG emissions from construction and operation of OBMPU are identified in Subchapter 4.2, Air Quality, of this DEIR (MMs **AQ-1** through **AQ-2**). No additional mitigation measures are recommended or required that would reduce significant and unavoidable impacts related to construction or new or expansion or modifications to existing water facilities. However, all mitigation measures identified throughout this DSEIR and within the Initial Study prepared as part of the NOP would otherwise reduce impacts related to the construction of water facilities under all remaining issues included in the Initial Study Checklist in Appendix G of the State CEQA Guidelines (14 California Code of Regulations §§15000, et seq.)*

Level of Significance After Mitigation: Significant and Unavoidable

As stated above under Mitigation Measures, no feasible mitigation measure have been identified that would reduce impacts related to construction of the proposed water facilities as part of the OBMPU. As such, though MMs **AQ-1** through **AQ-2** would reduce emissions from construction equipment, and would ensure minimization of fugitive dust during construction of OBMPU related facilities, construction-related greenhouse gas emissions exceed the SCAQMD screening thresholds of 3,000 $MTCO_2e$ and 10,000 $MTCO_2e$, and therefore the proposed OBMPU would result in significant and unavoidable impacts related to construction or new or expansion or modifications to existing water facilities.

Cumulative Impact Analysis

Level of Significance Before Mitigation: Potentially Significant
As discussed throughout this DSEIR, the proposed OBMPU would not result in any cumulative impacts from developing the proposed water facilities <u>except</u> those identified under Greenhouse Gas. Project GHG impacts are mitigated to the greatest extent feasible, but the program will still contribute to global climate change through a cumulatively considerable contribution of greenhouse gases. As such, the proposed project would result in a <u>cumulatively considerable/significant adverse impact related to construction or new or expansion or modifications to existing water facilities.</u>

Level of Significance After Mitigation: Cumulatively Significant Impact

<u>**Energy and Natural Gas**</u>
The proposed OBMPU includes the developed of various types of water infrastructure facilities, outlined under <u>Water</u>, above. The development of the above facilities would result in the construction of new and expansion of existing energy infrastructure to serve the new OBMPU facilities; however, as discussed under Subchapter 4.5, Energy, the proposed OBMPU would not cause or result in the need for additional energy producing facilities or energy delivery systems, which includes electricity and natural gas. Given that connection to the electrical power grid and connection to natural gas, where a connection to natural gas is required at future facilities, are minor components of the overall construction of OBMPU facilities and that the energy analysis concluded that impacts thereof would be less than significant, the provision of these facilities as part of the overall OBMPU would not cause a significant environmental effect.

For any specific OBMPU Facility that does not have access to electrical connection or natural gas, and will require either extension of infrastructure or creation of new infrastructure to meet electricity and/or natural gas needs at an OBMPU Facility site, mitigation will be required to examine the environmental impacts thereof.

Combined Project Categories

Level of Significance Before Mitigation: Potentially Significant

Mitigation Measures:

UTIL-1: ***Future OBMPU Projects that do not have access to electrical or natural gas connections in the immediate vicinity (defined here as a 500-foot buffer from a given project site), and will require either extension of infrastructure or creation of new infrastructure to meet electricity and/or natural gas needs at a future OBMPU Facility site, subsequent CEQA documentation shall be prepared that fully analyzes the impacts that would result from extension or development of energy or natural gas infrastructure.***

Level of Significance After Mitigation: Less Than Significant

Because it is not known where future OBMPU Facilities will be installed, there may be locations in which energy and/or natural gas services are not available within the immediate vicinity of a given OBMPU site. As such, Mitigation Measure **UTIL-1** would ensure that a subsequent CEQA documentation is prepared for projects that require extension or development of such infrastructure, which will ensure that any impacts are appropriately assessed and mitigated.

Cumulative Impact Analysis

Level of Significance Before Mitigation: Potentially Significant

The cumulative impact of the connection to electricity and natural gas required to implement the proposed OBMPU would be less than significant given that mitigation would ensure that the Program’s demand for extension of such infrastructure would be minimized through implementation of mitigation identified for specific projects that undergo subsequent CEQA documentation. The contribution of the OBMPU to future energy and natural gas infrastructure is considered a benefit to the overall Chino Basin as it may enable expanded supply for other uses surrounding future OBMPU facilities.

Level of Significance After Mitigation: Less Than Significant

b) Would that project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

<u>**Introduction: Overall Impacts from OBMPU Implementation**</u>

The purpose of the proposed OBMPU is to address the drivers and trends that are shaping water management, specifically within Chino Basin. These drivers and trends have implications for the Parties who extract water from the Chino Basin and rely upon Safe Yield of the Chino Basin to serve the Parties’ individual service areas. As stated in Chapter 3, the Project Description, “Drivers” are external forces that cause changes in the Chino Basin water space, such as climate change, regulations, and funding. Grouped under each driver are expected trends that emanate from that driver. For example, trends associated with climate change include reduced groundwater recharge, increased evaporation, and reduced imported water supply. The relationship of the drivers/trends to the management implications are shown by arcs that connect trends to implications. For example, a management implication of reduced groundwater recharge is the reduction of the Chino Basin Safe Yield. As such, when envisioning the scope of the OBMPU, Watermaster and the Parties included specific projects that could be implemented to minimize the impacts to the following from the drivers, trends, and implications that may adversely impact management of the Basin:

- Reductions in Chino Basin Safe Yield
- Reduced imported water availability and increased cost
- Imported water quality degradation
- Chino Basin water quality degradation
- Inability to pump groundwater with existing infrastructure
- Increased cost of groundwater use
- Recycled water quality degradation
- Reduced recycled water availability and increased cost
- Increased cost of Basin Plan compliance

The OBMPU proposes the implementation of a variety of Projects, as outlined in the Project Description, and listed above under issue (a), Water. The purpose of implementing the proposed OBMPU facilities over a 30 year horizon is to enhance management of the Chino Basin through enhancing basin water supply and to improve water supply reliability, protect and enhance water quality, encourage sustainable management of the Basin to avoid MPI, and identify and use efficient and equitable methods to fund OBMPU implementation.

As stated under the Project Description, growth is one of the drivers shaping water and basin management. As urban land uses replace agricultural and vacant land uses, the water demands of the Chino Basin Parties are expected to increase. Total water demand is projected to grow from about 290,000 afy in 2015 to about 420,000 afy by 2040, an increase of about 130,000 afy. The projected growth in water demand through 2040 is driven by the Appropriative Pool Parties, some of which will serve new urban water demands created by the conversion of agricultural and vacant land uses to urban uses. The proposed OBMPU addresses anticipated growth through the provision of facilities that would ensure adequate water supply is available to meet demand for the foreseeable future.

Given that the proposed OBMPU is a groundwater basin management plan, the Project in and of itself is designed to ensure that the Parties that utilize Chino Basin groundwater have sufficient supply available to serve the demand of each individual service area. It is the responsibility of each of the Parties to utilize the data contained herein, and within the technical studies provided as Appendices to this OBMPU DSEIR, and the *2020 Optimum Basin Management Program Update Report* to project future demand within their individual service areas and determine how to meet demand given the circumstances within the Basin. However, as described within Subchapter 4.7, Hydrology and Water Quality, implementation of the OBMPU requires mitigation to ensure adequate management of the Basin as the individual OBMPU facilities are developed. This includes mitigation that addresses pumping sustainability, hydraulic control, and reduction in net recharge, which could, without mitigation, result in variability in available supply to Chino Basin parties.

As such, and as stated under Subchapter 4.7, Hydrology and Water Quality, issue (b), Watermaster will periodically review current and projected basin conditions, compare this information to the projected basin conditions assumed in the evaluation of the Storage and Recovery Program application process, compare the projected Storage and Recovery Program operations to actual Storage and Recovery Program operations. Watermaster will then make findings regarding the efficacy of the mitigation program and requirements required herein and by the Storage and Recovery Program storage agreements. Based on Watermaster's review and subsequent findings, where applicable, Watermaster will then require changes and/or modifications in the Storage and Recover Program storage agreements that would adequately mitigate MPI and related adverse impacts. The mitigation provided under Subchapter 4.7, Hydrology and Water Quality, issue (b), would enable Watermaster to maintain sustainable management of the Basin, and thereby maintain sufficient water supply allocated to the Parties for the foreseeable future.

Based on this information, the Project would have a less than significant potential to have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years, once mitigation is implemented.

Project Category 1: Well Development and Monitoring Devices (PEs 1-9)
This Project Category includes the development of ASR, injection, pumping, groundwater level monitoring, and groundwater quality wells, associated well housing, as well as monitoring devices such as flow meters and extensometers. The proposed wells and monitoring devices will be installed throughout the Chino Basin.

The development of wells and monitoring devices will require minimal water usage for dust control activities should grading be required to install the wells. The monitoring devices are anticipated to be installed within surface water, and will not require substantial construction activities or operational activities beyond maintenance visits. As such, the monitoring devices are not anticipated to demand substantial water supply. The installation of wells may require up to 60 days of construction to complete. Therefore, given the short period of construction, water demand during construction would not be substantial and would not require new or expanded water supply resources. Furthermore, the development of the proposed well would not require expanded supply to operate beyond those created by the implementation of OBMPU Facilities as discussed above. Therefore, impacts would be less than significant.

Project Category 2: Conveyance Facilities and Ancillary Facilities (PEs 2, 4-9)
This category includes the construction of 550,000 LF of new pipelines, booster pump stations, reservoirs and minor appurtenances whose number. The proposed conveyance and ancillary facilities would be implemented throughout the entire Chino Basin.

Construction of the proposed pipelines and ancillary facilities would require minimal water usage for dust control and concrete washout activities. Pipeline construction would occur in phases and is expected to be relatively short, lasting from several months to a year. Therefore, water demand during construction would not be substantial and would not require new or expanded water supply resources.

The proposed pipeline and ancillary facilities would distribute water extracted from the Chino Groundwater Basin as described as part of the OBMPU. These facilities would not require additional water for operation. Conveyance and distribution of water through the proposed pipelines and ancillary facilities would provide expanded water sources for the Parties. Therefore, impacts related to new or expanded water supply resources or entitlements would be less than significant beyond those created by the implementation of OBMPU Facilities as discussed above.

Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands (PEs 2, 4-5, 8/9)

This Project Category includes the construction of 310 acres of new storage basins—several locations for which are within existing facilities, improvements to existing storage basin(s), 200 acres of flood MAR facilities, new MS4-compliance facilities, and expansion of the maximum storage space (safe storage capacity) to be used within the Chino Basin from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af between this range of storage. The specific locations of the storage basins are described in the Project Description above; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

Groundwater recharge and storage facilities would require minimal water usage for dust control and concrete washout activities. These proposed facilities would aid in the recharge and storage of the groundwater basin and would not require additional water for operation. Storage of the groundwater would enable sustainable management of the basin by preventing overdraft and protecting water quality of the basin, and also ensuring that Basin Water and storage capacity are put to maximum beneficial use while causing no MPI. Therefore, impacts from storage basin and recharge facilities related to new or expanded water supply resources or entitlements would be less than significant.

The proposed expansion of the safe storage capacity from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward is discussed in the introduction above. Impacts related to the provision of sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years is considered less than significant once mitigation is implemented.

Project Category 4: Desalters and Water Treatment Facilities (PEs 2, 4-9)

The projects proposed under this category are: upgrades at IEUA's existing Treatment Plants (discussed in IEUA's 2017 FMP PEIR), a new advanced water treatment plant (discussed in IEUA's 2017 FMP PEIR), improvements to the WFA Agua de Lejos Treatment Plant, upgrades to the Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities. The utilities related impacts related to the facilities thoroughly analyzed as part of the IEUA's 2017 FMP PEIR, and will not be analyzed further as part of this Initial Study.

Impacts would be the same as those discussed under Project Categories 1, 2, and 3 above.

Combined Project Categories

Level of Significance Before Mitigation: Potentially Significant

*Mitigation Measures: Mitigation measures **HYD-1, HYD-2, HYD-5, HYD-6, HYD-7, HYD-8, HYD-9, HYD-10,** and **HYD-11** are required to minimize impacts related to pumping sustainability, net recharge and safe yield, hydraulic control, and overall basin management. These mitigation measures will ensure that sufficient water supplies are available to serve the Parties within the Chino Basin.*

Level of Significance After Mitigation: Less Than Significant

Please refer to the discussion under Mitigation Measures above. Mitigation Measures **HYD-1, HYD-2, HYD-5, HYD-6, HYD-7, HYD-8, HYD-9, HYD-10,** and **HYD-11** would create a hierarchy of checks and balances as part of the sustainable management of the Basin through continuous monitoring of known issues within the Basin and a comparable mitigative response to ensure that these issues do not result in a significant impact. No further mitigation is required to ensure that sufficient water supplies are available to serve the Parties within the Chino Basin.

Cumulative Impact Analysis

Level of Significance Before Mitigation: Potentially Significant

Future cumulative development within the Chino Basin is expected to require new or expanded water supply resources or entitlements to serve the increase in urban development. However, a goal of the OBMPU is to ensure that water supply is reliable within the Chino Basin for the foreseeable future. Management actions to ensure adequate water supplies were evaluated based on various demand factors such as land development and community density.

The proposed OBMPU projects would accommodate increasing water demand and would not contribute to the need for new or expanded water supply resources or entitlements. Because the project would result in a less than significant impact related to expanded water supply resources, the project's contribution to cumulative impacts is not considered cumulatively considerable, and therefore, would result in a less than significant cumulative impact.

Level of Significance After Mitigation: Less Than Significant

4.9.6 Unavoidable Significant Adverse Impacts

The foregoing evaluation demonstrates that the construction of the proposed water facilities would result in a significant impact, thereby, a significant impact under Utilities and Service Systems is anticipated as a result of implementation of the OBMPU. This is because the OBMPU would develop water facilities that would contribute greenhouse gas emissions that exceed the SCAQMD screening thresholds of 3,000 $MTCO_2e$ and 10,000 $MTCO_2e$. No feasible mitigation measures are available that would reduce construction emissions to below a level of significance. Therefore, the proposed OBMPU would result in significant and unavoidable impacts related to construction or new or expansion or modifications to existing water facilities. All other impacts related to Utilities and Service systems have been determined to be less than significant with implementation of mitigation identified herein.

CHAPTER 5 – ALTERNATIVES

5.1 INTRODUCTION

The California Environmental Quality Act (CEQA) and the State CEQA Guidelines require an evaluation of alternatives to the proposed action when a project may cause a significant adverse impact on the environment. The programs that would be implemented under the Peace II Agreement have been evaluated for potential significant adverse impacts in Chapter 4 of this document and the Initial Study in Appendix 8.1. Based on the analysis in these sections of the DSEIR, implementation of the Peace II Agreement programs is forecast to contribute to cumulatively considerable or unavoidable significant air quality impacts in the South Coast Air Basin during both construction and operation, even after implementation of identified mitigation measures. No other potential significant adverse environmental impacts are forecast to result from the program's implementation after implementation of the recommended mitigation measures. The purpose of the alternatives' evaluation under CEQA is to determine whether one or more feasible alternatives are capable of reducing these potentially significant impacts of a preferred project to a less than significant level. The applicable text in the State CEQA Guidelines occurs in Section 15126 as follows:

Section 15126.6(a): *Alternatives to the Proposed Project. An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation.*

Section 15126.6(b) *Purpose. Because an EIR must identify ways to mitigate or avoid the significant effects that a project may have on the environment (Public Resources Code Section 21002.1), the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives or would be more costly.*

The range of feasible alternatives to the Optimum Basin Management Program Update (OBMPU) is selected and discussed in a manner to foster meaningful public participation and informed decision making. Among the factors that may be taken into account when addressing the feasibility of alternatives are environmental impacts, site suitability, economic viability, availability of infrastructure, regulatory limitations, jurisdictional boundaries and whether the applicant could reasonably acquire, control, or otherwise have access to the alternative option. (CEQA Guidelines § 15126.6(f) (1))

5.1.1 <u>Alternatives Considered But Rejected</u>

5.1.1.1 Alternate Location

Since management of water resources in the Chino Basin is an activity that cannot be conducted at another location, this evaluation will not give further consideration to an alternative location for the project. Thus, an alternative location evaluation in this DSEIR is rejected as infeasible and unable to meet basic project objectives, i.e., the objective of managing the Chino Basin groundwater resources in a manner to sustain future water supply and water quality demands/requirements within the Basin. A project outside of the Chino Basin cannot achieve this fundamental objective.

5.1.1.2 Reducing the Project Scope

The OBMPU is an integrated program/plan designed to incrementally implement the water infrastructure required to create a sustainable water supply and meet the forecast increase in water demand from growth in the Chino Basin over the next 30 years. As indicated in Chapter 3 of this environmental document, the Watermaster and the stakeholders/parties spent the past two years developing an integrated program to establish sustainability of water resources in the Chino Basin.

The *2020 Optimum Basin Management Program Update Report* (2020 OBMP Update Report), released in July 2019 by CBWM, documents the stakeholder process that was used to update the OBMP and it describes the 2020 OBMP Management Plan. The management plan forms the basis for the 2020 OBMP Implementation Plan Update. Through this process, the stakeholders concluded that the goals of the 2020 OBMP Update should be identical to the 2000 OBMP goals.

Accordingly, the 2020 OBMPU's goals remain the same as the 2000 OBMP's goals:

> ***Goal No. 1 - Enhance Basin Water Supplies.*** The intent of this goal is to increase the water supplies available for Chino Basin Parties and improve water supply reliability. This goal applies to Chino Basin groundwater and all other sources of water available for beneficial use.
>
> ***Goal No.2 - Protect and Enhance Water Quality.*** The intent of this goal is to ensure the protection of the long-term beneficial uses of Chino Basin groundwater.
>
> ***Goal No.3 - Enhance Management of the Basin.*** The intent of this goal is to encourage sustainable management of the Chino Basin to avoid Material Physical Injury, promote local control, and improve water-supply reliability for the benefit of all Chino Basin Parties.
>
> ***Goal No. 4 - Equitably Finance the OBMP***. The intent of this goal is to identify and use efficient and equitable methods to fund OBMP implementation.

Even though the project goals remain the same as originally defined in the OBMP, the 9 Program Elements in the OBMPU contain a different mix of future projects. The 2020 OBMPU and related documents is a revision of the implementation plans included in the Peace I and Peace II Agreements and incorporates the new activities in the 2020 OBMPU and ongoing activities from the 2000 OBMP. The 2020 OBMPU Implementation Plan (IP) puts forth a series of one-time actions and ongoing management processes, organized by Program Elements (PE), that help achieve the goals of the OBMPU and set the framework for the next 30 years of basin-management activities. These facilities are listed in Exhibit 5 and are outlined in further detail below.

The implementation of the facilities proposed as part of the OBMPU consists of construction and operation of the various facilities that will be summarized below. These potential facilities are separated into four project categories: (1) Project Category 1: Well Development and Monitoring Devices; (2) Project Category 2: Conveyance Facilities and Ancillary Facilities; (3) Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands; and, (4) Desalters and

Water Treatment Facilities. Below are general descriptions of the facilities and operations proposed as part of the OBMPU.

Project Category 1: Well Development and Monitoring Devices
This Project Category includes the development of ASR, injection, pumping, groundwater level monitoring, and groundwater quality wells, associated well housing, as well as monitoring devices such as flow meters and extensometers. The proposed wells and monitoring devices will be installed throughout the Chino Basin.

Well development includes up to 60 new ASR wells, 10 wells relocated to adjust up to 25,000 afy of pumping, and 8 new wells to expand desalter capacity for a total of 78 new wells. In addition, the OBMPU anticipates reconstruction and/or modification of up to 5 wells to mitigate loss of pumping capacity, and destruction and replacement of 5 wells. This category also includes the development of 100 monitoring wells, for a total of up to 178 wells, which serve the varying purposes listed above and outlined below. The monitoring devices proposed as part of the OBMPU include up to 300 flow meters, up to 100 transducer data loggers, and 3 extensometers installed in existing private wells.

Project Category 2: Conveyance Facilities and Related Infrastructure
This category includes the construction of up to 550,000 LF of new pipelines, booster pump stations, reservoirs and minor appurtenances whose number, locations and capacities are presently unknown. The proposed conveyance facilities and ancillary facilities would be implemented throughout the entire Chino Basin.

Project Category 3: Storage Basins and Recharge Facilities and Storage Bands
This Project Category includes the construction of up to 310 acres of new storage basins—several locations for which are within existing facilities, improvements to existing storage basin(s), 200 acres of flood MAR facilities, new MS4-compliance facilities, and expansion of the maximum storage space (safe storage capacity) to be used within the Chino Basin from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af within this range of storage. The specific locations of the new and existing storage basins are described in the Project Description, above; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

Project Category 4: Desalters and Water Treatment Facilities
The projects proposed under this category are: upgrades at IEUA's existing Treatment Plants (previously analyzed in IEUA's 2017 FMP PEIR), a new advanced water treatment plant (previously analyzed in IEUA's 2017 FMP PEIR), improvements to the WFA Agua de Lejos Treatment Plant, upgrades to the Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities. Impacts related to the facilities thoroughly analyzed as part of the IEUA's 2017 FMP PEIR are assumed to be part of the baseline and will not be analyzed further as part of the OBMPU.

As shown in the preceding discussion, the OBMPU consists of a complex, complicated and integrated program that incorporates a mix of projects and operations that are designed to meet the primary re-stated objectives of the OBMPU to meet sustainable and sufficient water supply though 2050. Although minor tweaks or modifications to the OBMPU are likely to occur over the next 30 years, no major changes in the program have been identified at this stage that can be implemented without harming its ability to meet the essential program objective of increasing water supply in a sustainable manner. For example, deferring installation of water-related infrastructure in any given year to reduce GHG would simply increase the amount of construction required in the following year, thus raising GHG emissions.

5.2 NO PROJECT / BASELINE ALTERNATIVE

One of the alternatives that must be evaluated in an EIR is the “no project alternative,” regardless of whether it is a feasible alternative to the Project, i.e. would meet the project objectives or requirements. Under this alternative, the environmental impacts that would occur if the OBMPU Agreement programs are not implemented are evaluated. However, under a no project alternative, water management activities in the Chino Basin do not go away. By default, the Chino Basin stakeholders would continue to implement the Baseline Alternative,” which represents the “business as usual” approach to water resources management in the Basin. This alternative represents the continuation of OBMP programs under the approved Peace I and Peace II Agreements. The approved in the 2017 Addendum to the OBMP enabled a short-term increase in groundwater storage, but it expires on June 30, 2021.[1] This alternative includes the installation of water infrastructure on an as-needed basis to meet the Peace I and II Agreement programs outlined in the OBMP, without installing those facilities required to achieve the objectives of the proposed OBMPU.

When the No Project Alternative is compared at a general level with the proposed OBMPU facilities the primary differences are:

- Project Category 1 Wells, a few wells may be installed to support continued OBMP implementation whereas the OBMPU envisions up to 78 new wells and support equipment, including up 60 ASR wells to support expanded storage and recovery capacity (not included under the OBMP);
- Project Category 2 pipelines and support facilities, up to 550,000 lineal feet of new pipeline would be installed to interconnect various new OBMPU facilities whereas under the OBMP some additional pipelines might be installed, without the new OBMPU facilities the amount of pipeline installation would be less;
- Project Category 3 storage basins, recharge facilities and storage bands, six new storage basins (310 acres estimated) and increased groundwater storage of up to 1,000,000 af, whereas no new storage basins are envisioned under the OBMP and maximum groundwater storage under the OBMP will soon return to 500,000 af;
- Project Category 4, desalter facility and water treatment facility development or expansions are envisioned under the OBMPU and none of these expansions or new facilities are envisioned under the OBMP.

Therefore, the only alternative considered in this chapter is the “No Project/Baseline Alternative”. The following evaluation will also include identification of an environmentally superior alternative as required by the State CEQA Guidelines. A summary comparative discussion of the no project alternative in terms of the specific issues evaluated in this DSEIR (air quality, biological resources, cultural resources, energy, greenhouse gas, hydrology and water quality, tribal cultural resources, and utilities/service systems [water, electricity, and natural gas]).

<u>Air Quality</u>: Based on the preceding comparative evaluation of OBMPU and OBMP project activities, the level of construction air quality impact is forecast to be substantially reduced for the No Project/Baseline Alternative because it would implement substantially fewer facilities.

[1] Tom Dodson & Associates. (2017). *Addendum No. 1 to the Optimum Basin Management Program Project*. Page 2.

Similarly, it is forecast that this alternative's operations would require substantially less electricity that would cause air emissions because most of the energy consuming facilities would not be constructed under this alternative. Regardless, when mitigation is implemented—primarily minimization of construction emissions through limiting potential sources of fugitive dust and through minimization of construction equipment emissions—the impact of the two alternatives are equivalent. As such, under this evaluation and set of assumptions the No Project/Baseline Alternative would have substantially less overall construction and operation emissions, but the impact of both alternatives would be a less than significant impact on regional air quality.

<u>Biological Resources</u>: By eliminating the surface water storage facilities, the No Project/Baseline Alternative will have the less general biological resource impacts. In particular the elimination of surface water facilities in the vicinity of Prado Basin and related surface water diversions has a potential to eliminate the potentially significant impacts to "critical habitat" in Prado Basin. When mitigation is implemented—primarily avoidance of biologically sensitive areas or compensation to offset losses to sensitive biological resources—the proposed Project approaches the No Project/Baseline Alternative biological resource impacts, but a potential still exists for significant impacts. This is because it is assumed that in order to achieve management of water resources in the Basin under the OBMPU, a given project may be required at a specific location that may contain significant biological resources that cannot be avoided. As such, under this evaluation and set of assumptions the proposed Project effects on biological resources is considered to be greater than the No Project/Baseline Alternative.

<u>Cultural Resources</u>: Simply because the proposed Project will disturb a greater amount of area, the potential for encountering cultural resources is greater under the proposed Project. The No Project/Baseline Alternative will have similar impacts from continued development, but not as extensive due to the smaller area of disturbance. When mitigation is implemented—primarily avoidance of culturally sensitive areas, further site-specific study of large scale OBMPU projects, and specific treatment requirements for buried cultural materials that may be uncovered during construction of future projects—both alternatives are forecast to cause less than significant impacts to cultural resources. Under this evaluation and set of assumptions the No Project/Baseline Alternative would have slightly less impacts on cultural resources to the proposed OBMPU.

<u>Energy</u>: As stated under Air Quality, above, the No Project/Baseline Alternative will create substantially less demand for energy because it will implement fewer infrastructure facilities. However, IEUA and other OBMPU stakeholders in the Chino Basin have installed and are continuing to install alternative (non-fossil fuel energy generation systems) power generating systems (primarily solar photovoltaic systems and digesters that utilize biosolids). The electricity required for future projects under the No Project/Baseline Alternative involves the construction of far fewer energy consuming facilities than the proposed Project. Regardless, through adherence to and implementation of the air, GHG and energy mitigation measures, local General Plan policies, State and Federal regulations pertaining to energy conservation, SCE programs, and other existing regulations, the proposed Project's potential energy cumulative and Program-specific impacts can be controlled and will be below a level of significance. The same is assumed for Projects that may be developed under the No Project/Baseline Alternative. Under this evaluation and set of assumptions the No Project/Baseline Alternative would have less overall energy impact when compared to the proposed Project, but in either case energy impacts will be less than significant.

Greenhouse Gas: Based on the preceding comparative evaluation of OBMPU and OBMP project activities, the level of construction GHG impact is forecast to be substantially reduced for the No Project/Baseline Alternative because it would implement substantially fewer facilities. Similarly, it is forecast that this alternative's operations would require substantially less electricity that would cause air emissions because most of the energy consuming facilities would not be constructed under this alternative. However, after mitigation is implemented—primarily through minimization of construction equipment emissions—the impact of the two alternatives would be different. GHG emissions might be reduced below the industrial threshold of 10,000 metric tons, but probably not below the residential threshold of 3,000 tones if GHG. As such, under this evaluation and set of assumptions the No Project/Baseline Alternative would have substantially less overall construction and operation emissions, but the impact of both alternatives may still be considered to be an unavoidable significant adverse impact.

Hydrology and Water Quality; Utilities and Service Systems: It is under this environmental issue where the two project alternatives, OBMPU Alternative and No Project/Baseline Alternative, diverge in their potential environmental impacts. Under the OBMPU, the expansion of the range in managed storage unused for Storage and Recovery programs presents several potential challenges that (may) result in significant impacts, including potential new pumping sustainability challenges and potential material physical injury (MPI) related to the GE Flat Iron and Test Cell plumes above 700,000 AF of managed storage. Under the No Project/Baseline Alternative, however, there are other challenges with managing the basin, including that total water demand is projected to grow from about 290,000 afy in 2015 to about 420,000 afy by 2040, for which several of the management programs proposed as part of the OBMPU address. As such, under the No Project/Baseline Alternative, the facilities required to ensure that ample water supply is available to meet future demand in a sustainable manner may not be developed, and as such a significant impact could occur under this alternative. Furthermore, without implementation of the OBMPU, drivers and trends shaping the management of the Basin going forward would not be taken into account regarding future management of the Basin; these drivers and trends include climate change, which can result in reduced groundwater recharge, increased evaporation, and reduced imported water supply. As such, going forward with management of the Basin in a "Business as Usual" approach would not address these potential challenges, and therefore, may result in a major significant impact to the Basin's hydrology resources and water quality characteristics.

Regarding flood hazards and contribution thereof, the No Project/Baseline Alternative, with a smaller overall footprint, has less potential to install facilities within flood hazard areas. Regardless, both of these alternatives are forecast to have less than significant adverse impact under this environmental topic.

Finally, under the No Project/Baseline scenario, the ability to attain the Basin water supply and sustainability goals and objectives as described under Chapter 3, Project Description, in this DSEIR would be virtually eliminated. The stakeholders in the Basin would be disabled in their attempt to collectively correct and mitigate drivers and trends in today's water management space that may challenge the ability of the Parties to protect their collective interests in the Chino Basin and their water supply reliability.

In the final analysis, the no project alternative clearly cannot be considered the environmentally superior alternative to the proposed Project for the hydrology and water quality issue. Under the OBMP, substantial environmental damage from continued implementation this alternative could cause a significant adverse impact on hydrology and water quality when compared to implementing OBMPU.

Tribal Cultural Resources: Simply because the proposed Project will disturb a greater amount of area, the potential for encountering Tribal cultural resources is greater under the proposed Project. The No Project/Baseline Alternative will have similar impacts from continued development, but not as extensive due to the smaller area of disturbance. When mitigation is implemented—primarily avoidance of tribally sensitive areas, further site-specific study of large scale OBMPU projects, and specific treatment requirements for buried Tribal cultural materials that may be uncovered during construction of future projects—both alternatives are forecast to cause less than significant impacts to cultural resources. Under this evaluation and set of assumptions the No Project/Baseline Alternative would have slightly less impacts on cultural resources to the proposed OBMPU.

Utilities and Service Systems: As stated under Hydrology and Water Quality, above, Utilities and service systems is another environmental issue where the two project alternatives, OBMPU Alternative and No Project/Baseline Alternative, diverge in their potential environmental impacts. Under the No Project/Baseline Alternative it is anticipated that there would be challenges with managing the basin, including that total water demand is projected to grow from about 290,000 afy in 2015 to about 420,000 afy by 2040, for which several of the management programs proposed as part of the OBMPU address. As such, under the No Project/Baseline Alternative, the Basin-wide facilities required to ensure that ample water supply is available to meet future demand may not be developed, and as such a significant impact could occur. Under the OBMPU, unlike the No Project/Baseline Alternative, the Chino Basin would have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years, once mitigation is implemented.

For all other Utilities and Service Systems impacts discussed in this DEIR, including extension of infrastructure (electricity, natural gas, and water), it is anticipated that the No Project/Baseline Alternative would result in substantially lower impacts. This is inclusive of the significant impact related to extension of water infrastructure that would result due to construction related GHG emissions.

5.3 CONCLUSION

The No Project/Baseline alternative to the proposed project would be feasible but would not meet the fundamental project objectives outlined in the OBMPU Project Description, which are to increase the water supplies available for the Chino Basin Parties and to improve water supply reliability in accordance with the current understanding of the Basin hydrology. The No Project/Baseline Alternative has comparable environmental impacts for all of the resource issues, except for those related to hydrology/water quality. The No Project/Baseline Alternative is forecast to have significant unavoidable adverse impacts to hydrology/water quality, and would cause greater significant unavoidable adverse impacts under utilities and service systems than the OBMPU. Further, although the No Project/Baseline alternative would reduce potentially significant impacts identified in this DSEIR as compared to the proposed Project, it would lead to greater impacts in some other areas, including hydrology/water quality and utilities and service systems. In the final analysis, the No Project/Baseline Alternative clearly cannot be considered the environmentally superior alternative to the proposed project from a total environmental standpoint, because the environmental damage from implementing it is forecast to cause a significant adverse impact when compared to implementing OBMPU. Based on the findings in this alternative evaluation, the OBMPU Alternative is the environmentally superior alternative.

Finally, under the No Project/Baseline alternative, the ability to attain the goals and objectives as described under Chapter 3, Project Description, in this DSEIR would be virtually eliminated. The stakeholders in the Basin would be disabled in their attempt to collectively correct and address drivers and trends in today's water management framework that may challenge the ability of the Parties to protect their collective interests in the Chino Basin and their water supply reliability. On that basis, the No Project/Baseline alternative is rejected because it would not obtain most of the Project's basic objectives.

CHAPTER 6 – TOPICAL ISSUES

6.1 GROWTH INDUCEMENT

CEQA requires a discussion of the ways in which a project could be growth-inducing. (Pub. Resources Code, § 21100, subd. (b)(5); CEQA Guidelines, §§ 15126, subd. (d), 15126.2, subd. (d)). The CEQA Guidelines identify a project as growth-inducing if it would foster economic or population growth or the construction of additional housing, either directly or indirectly, in the surrounding environment. New employees from commercial or industrial development and new population from residential development represent direct forms of growth. These direct forms of growth have a secondary effect of expanding the size of local markets and inducing additional economic activity in an area. Under CEQA, growth inducement is not considered necessarily detrimental, beneficial, or of little significance to the environment. (CEQA Guidelines § 15126.2, subd. (d)).

A project could indirectly induce growth by reducing or removing barriers to growth, or by creating a condition that attracts substantial additional population or new economic activity. However, a project's potential to induce growth does not automatically result in growth. Growth can only happen through capital investment in new economic opportunities by the private or public sectors. Development pressures are a result of economic investment in a particular locality. Without the increase in demand for services and utilities growth demand stops and these service and utility infrastructure systems do not have to grow to meet new demand. These pressures help to structure the local politics of growth and the local jurisdiction's posture on growth management and land use policy. The land use policies of local municipalities and counties regulate growth at the local level, not the actions and policies of utility agencies, such as the water providers in the Chino Basin.

Growth inducement may also occur if a project provides infrastructure or service capacity that accommodates growth beyond the levels currently permitted by local or regional land use plans in policies. This type of induced growth leads to conversion of adjacent acreage to higher intensity uses, either unexpectedly or through accelerated development. This conversion occurs because the adjacent land becomes more suitable for development and, hence, more valuable because of the availability of the new infrastructure.

6.1.1 <u>Direct Growth-Inducing Effects</u>

The OBMPU programs propose broad management actions to implement a coherent program for meeting future water supply requirements, ultimately for the maximum population that will inhabit the cities and communities in the Chino Basin. These programs do not propose creation of housing, industrial facilities, or commercial facilities that could directly induce growth in the region. Also, the OBMPU program or future projects do not include the creation of a substantial number of new jobs.

The Project would result in the installation of a variety of new water infrastructure facilities and a modification to overall operation of the Chino Basin water community to achieve specific management goals. It is anticipated that short-term construction activities over the next 30-years would be met from existing construction companies in southern California in response to Watermaster and stakeholder/party contracts. Based on the rate of future facility implementation and the availability of construction companies and workers, no new growth is forecast to be induced. The continued and expanded operations and efforts envisioned by the OBMPU program will not generate a substantial increase in employment or induce substantial growth. Based on the foregoing analysis and findings, the future OBMPU projects will not directly result in any significant population growth, and would not result in population growth for the Chino Basin cities and communities beyond that reflected in adopted SCAG and General Plan growth projections.

6.1.2 Indirect Growth-Inducing Effects

Approval of the OBMPU and its implementation will not cause or contribute to non-project-related “leap frog” or “premature” development because the purpose of the program is to provide an overall management strategy, tied to specific facilities and management actions, that will provide the Chino Basin with a sustainable water supply partially based on effective management of the Chino Basin groundwater resources. As noted above, it does not generate a large number of new jobs. It will result in more infrastructure construction within the Chino Basin over the next 30 years, but due to the available construction resources in southern California, no significant influx of new construction workers is forecast to occur in the region. The indirect effect of implementing the OBMPU programs and future site-specific projects is not forecast to cause substantial indirect growth inducing effects.

The position taken in this document is that the utility planning process is more appropriately playing a passive (accommodating) role, not an active (inducing) role. Actual future growth within the Chino Basin controlled by local land use plans that establish the type of future development that will foster continuing growth of population throughout southern California. If communities within the project area chose to restrict growth and maintain a certain vision of the future as a static or slowly growing entity, the land use planning agencies (cities and counties) have the opportunity during the general planning process to establish such plans. Under such circumstances, the water utilities would have designed their future service plans to accommodate a level of future growth consistent with available resources. The future water demand forecasts for all water purveyors are dictated by the general plans of the land use planning agencies, and the OBMPU represents a collective or cumulative effort to create a sustainable water supply through 2050.

In reality, however, the water supply agencies, acting as responsible water planning agencies, must plan for a level of future growth that appears to match available water resources with forecast growth through the 2050 planning horizon. At present the domestic water agency water supply plans (Urban Water Management Plans) rely to a certain extent on water importation. The OBMPU provides an alternative water management program for the Chino Basin that has a goal to reduce reliance on imported water (recycled water, desalter programs, groundwater recharge programs, etc.). Implementation of the OBMPU programs still allow the water supply agencies to accommodate growth as envisioned in the applicable area general plans. Based on this analysis, implementation of the OBMPU program is not considered to be a significant growth inducing action.

6.2 CUMULATIVE IMPACTS

The following text summarizes the cumulative impact analyses provided in Chapter 4. The intent of a cumulative impact evaluation is to provide the public and decision-makers with an understanding of a given project's contributions to area-wide or community environmental impacts when added to other or all development occurring within an area. The state CEQA Guidelines provide two alternative methods for making cumulative impact forecasts: (1) a list of past, present and reasonably anticipated projects in the project area, or (2) the broad growth impact forecast contained in general or regional plans. Because of the planning character of this project, it will be evaluated in the context of adopted General Plans. From water planning perspective, the OBMPU represents a cumulative, or carrying capacity, evaluation of water resources in the Chino Basin and their management over the next 30 years. Thus, the analysis of Chino Basin water resources contained in this document represents a cumulative analysis of this resource. No other specific projects were identified within the project area or vicinity that would contribute to cumulative impacts or cumulative demand for local water infrastructure.

The cumulative impacts of implementing the proposed project are outlined in Chapter 4 for each environmental issue. The DSEIR concluded that two unavoidable significant adverse impacts, including cumulative effects, would result from implementing the OBMPU. These include: GHG emissions on an annual basis and biology resources. Also, due to the cumulative contributions to GHG and Biology issues, the impact from installing water utilities (Utilities and Service Systems) are considered an unavoidable significant impact. All other issues identified in the Initial Study Environmental Checklist Form (Appendix G, State CEQA Guidelines, 2020) were found to be less than cumulatively considerable either in the Initial Study (Subchapter 8.2) or in this DSEIR.

For the remaining issues, air quality, biology, geology/soils (liquefaction and subsidence), hydrology/water quality, and utility service systems (water supply), the following summary of cumulative effects is provided. The reader should also refer to the text for each issue in Chapter 4 for more information.

6.3 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

The CEQA Guidelines §§ 15126, subd.(c), 15126.2 subd.(d), 15127, require that for certain types or categories of project, an EIR must address significant irreversible environmental changes that would occur should the Project be implemented. As presented at Guidelines § 15127, the topic of Significant Irreversible Environmental Changes need be addressed in EIRs prepared in connection with any of the following activities:

(a) The adoption, amendment, or enactment of a plan, policy, or ordinance or a public agency;

(b) The adoption by a local agency formation commission of a resolution making determinations; or

(c) A project which will be subject to the requirements for preparing of an environmental impact statement pursuant to the requirements of the National Environmental Policy Act of 1969, 42 U.S.C. 4321-4347.

The project marginally qualifies under Guidelines § 15127(a) in that the proposed action consists of a adoption of the OBMPU for the Chino Basin. As such, it was concluded that this DSEIR analysis must address any significant irreversible environmental changes that would be involved in the proposed project should it be implemented (CEQA Guidelines, Sections 15126(e) and 15127). An impact would fall into this category if:

- The project would involve a large commitment of nonrenewable resources;
- The primary and secondary impacts of the project would generally commit future generations to similar uses;

- A project involves uses in which irreversible damage could result from any potential environmental incidents associated with the project; or

- The proposed consumption of resources is not justified (e.g., the project results in wasteful use of energy).

Determining whether implementation of the proposed OBMPU may result in significant irreversible effects requires a determination of whether key resources would be degraded or destroyed in such a way that there would be little possibility of recovering or restoring them for continued use. No such degradation or destruction of resources is anticipated as a result of the proposed project. While the OBMPU project will consume resources (energy, steel, concrete, etc.) none of the activities are forecast to cause a significant, permanent commitment of resources from project implementation. As noted, various natural resources, in the form of construction materials and energy resources will be utilized in the construction of the program facilities, and energy resources, in the form of electricity, natural gas and petroleum/chemical products, will be used during the long-term operations of the proposed facilities; however, their use is not expected to create a permanent and negative impact to the long-term availability of these resources.

If the OBMP programs are effectively implemented, the following irreversible environmental changes or commitments of resources would be involved:

a. The construction, installation and maintenance of pipelines, new wells, pump stations, desalter units, storage facilities and water treatment facilities and other public facilities, as proposed in the Peace II program, will involve the irreversible consumption of natural resources in the form of construction materials, water, and energy sources. Money, energy, and manpower will be expended to develop and maintain the facilities and operations but not at a level of significant impact.

b. The development of individual properties in accordance with land uses designated in the OBMPU will, for all intents and purposes, eliminate the possibility of development of the land for other uses. Though not necessarily permanent or irreversible, the commitment to long term use will occur over the normal human time scale.

c. A commitment of economic and manpower resources will be required for the long-term implementation of the OBMPU.

d. Building materials, including forest and mineral products, will be permanently committed in construction projects related to the long-term implementation of the proposed program.

e. Expenditures of money, manpower, and materials will be made to maintain adequate levels of public service to the greater community while those services are undergoing disruption and modification within the proposed project area.

f. A limited potential exists to cause the irreversible loss of critical habitat. The potential for the permanent loss of a species based on construction and implementation of the OBMPU is not considered a significant impact as alternative water sources or alternative sites can avoid such a significant permanent loss.

All other potential adverse impacts from implementing the proposed project are considered reversible. Air emissions and water resources and water quality can be changed by both humans and nature over time by cleaning air and water and by reducing or providing alternative sources of water. In fact, the proposed project includes a key element designed to clean groundwater contamination in the Chino Basin in conjunction with cooperative implementation of the Chino Desalter projects. Soils and geologic resources will be modified but can be modified in the future to suit different purposes.

Land uses and population growth can be considered irreversible on the short term, but the growth forecast for these two issues is not considered to be attributable to the proposed project. Thus, through the incorporation of recommended mitigation measures together with the implementation of the OBMPU, limited significant irreversible environmental changes will be caused within the project area that can be attributable to the proposed project, and implementation of the extensive suite of mitigation measures in this document will insure that all other potential irreversible environmental impacts, as identified above and described within Chapter 4 of this DSEIR, will not rise to a level of significance or can be adequately mitigated to a level of insignificance.

6.4 SIGNIFICANT UNAVOIDABLE ENVIRONMENTAL IMPACTS

The CEQA Guidelines §§ 15126.2, subd. (b) require that an EIR describe significant impacts where the impacts cannot be alleviated without making it infeasible to achieve project objectives. This SEIR has identified three potential unavoidable significant adverse impacts from implementing the OBMPU: Biology related to Critical Habitat; Greenhouse Gas Emissions and Climate Change; and Utilities and Service Systems, Water Infrastructure. Refer to discussions of these topics in Chapter 4 for the detailed evaluation and the rationale for why impacts cannot be mitigated to a less than significant impact level.

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CHAPTER 7 – PREPARATION RESOURCES

7.1 REPORT PREPARATION

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7.1.3 EIR Technical Consultants

- *Final Program Environmental Impact Report for the Optimum Basin Management Program* (SCH#200041047), July 2000 prepared by Tom Dodson & Associates (2000 OBMP PEIR)
- *Final Program Environmental Impact Report for the Wastewater Facilities Master Plan, Recycled Water Master Plan, Organics Management Master Plan* (SCH#2002011116), June 2002 prepared by Tom Dodson & Associates
- *Final Subsequent Environmental Impact Report for Inland Empire Utilities Agency Peace II Project* (SCH#2000041047), September 2010 prepared by Tom Dodson & Associates (2010 Peace II SEIR)
- *IEUA Facilities Master Plan Final Environmental Impact Report* (SCH#2016061064), February 2017 prepared by ESA (2017 FMP EIR)
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- *2020 Optimum Basin Management Program Update Air Quality Impact Analysis Chino Basin Watermaster*, March 6, 2020 prepared by Urban Crossroads

- *Program Biological Resources Report, Optimum Basin Management Program Update for the Chino Basin Watermaster and Inland Empire Utilities Agency*, March 15, 2020 prepared by Jacobs Engineering Group
- CRM TECH collaborated on drafting the Cultural Resources Environmental Impact Evaluation (Chapter 4.4)
- *2020 Optimum Basin Management Program Update Energy Analysis Chino Basin Watermaster,* March 20, 2020 prepared by Urban Crossroads
- *2020 Optimum Basin Management Program Update Greenhouse Gas Analysis Chino Basin Watermaster*, March 20, 2020 prepared by Urban Crossroads
- *2020 Optimum Basin Management Program Update Report*, 2020, prepared by WEI

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Historic Map, Aerial Photograph, and Record Collections:

- California Historic Resources Information System: reports and site records pertaining to the Chino Basin area; available at Eastern Information Center, University of California, Riverside, and South Central Coastal Information Center, California State University, Fullerton.
- General Land Office, U.S. Department of the Interior: land survey plat maps, 1850s-1910s; available at U.S. Bureau of Land Management, California Desert District, Moreno Valley.
- Google Earth: historic aerial photograph collection, 1984-2016; available through the Google Earth software.
- Nationwide Environmental Title Research Online: historic aerial photograph collection, 1938-2016; available at http://www.historicaerials.com.
- Natural History Museum of Los Angeles County, Vertebrate Paleontology Section: paleontology collection records; available at the museum, Los Angeles.
- San Bernardino County Museum, Division of Earth Sciences: Regional Paleontological Localities Inventory; available at the museum, Redlands.
- United States Geological Survey, U.S. Department of the Interior: topographic maps, various quadrangles (30’, 15’, and 7.5’), 1901-1996; available at Science Library, University of California, Riverside.

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CHAPTER 8 – APPENDICES

8.1 NOTICE OF PREPARATION / DISTRIBUTION LIST

8.2 INITIAL STUDY

8.3 NOP COMMENT LETTERS

APPENDIX 8.1

NOTICE OF PREPARATION / DISTRIBUTION LIST

NOTICE OF PREPARATION
AND
NOTICE OF PUBLIC SCOPING MEETING

Chino Basin Wastewater Optimum Basin Management Program Update

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To:	California Office of Planning and Research Responsible and Trustee Agencies Federal Agencies Other Interested Parties
Subject:	Notice of Preparation of a Draft Environmental Impact Report and Notice of Public Scoping Meeting
Project:	Chino Basin Optimum Basin Management Program Update (OBMPU)
Lead Agency:	Inland Empire Utilities Agency
Date:	February 10, 2020

Notice of Preparation:

This Notice of Preparation (NOP) has been prepared to notify agencies and interested parties that the Inland Empire Utilities Agency (IEUA) as the Lead Agency has independently prepared an Initial Study and determined that there are potentially significant impacts associated with implementation of projects identified in the proposed Optimum Basin Management Program Update (OBMPU), and an Environmental Impact Report (EIR) is required. The OBMPU continues the OBMP's nine Program Elements (described in the attached Initial Study), and describes facility improvements needed to meet the OBMPU's long-term planning objectives over a thirty-year planning horizon. The OBMPU EIR will tier from prior OBMP environmental documents, including but not limited to the Final Program Environmental Impact Report for the Optimum Basin Management Program (SCH#200041047), July 2000, prepared by Tom Dodson & Associates (2000 OBMP PEIR). The IEUA has prepared this Notice of Preparation in accordance with the State CEQA Guidelines (Section 15082).

The Initial Study is attached to this Notice, along with maps of the project area. The Initial Study has identified the following issues to be addressed in the scope of the EIR: air quality, biology, cultural resources, energy, greenhouse gases, hydrology and water quality, tribal cultural resources, and utilities and service systems. The Initial Study has not identified any other issues identified in CEQA Guidelines Appendix G that raise potentially significant environmental impacts.

The IEUA is soliciting the input from interested persons and agencies to assist in the further development of the scope and content of the environmental information to be studied in the EIR. In accordance with CEQA, agencies are requested to review the Initial Study that describes a program of proposed facilities and activities and provide comments on environmental issues related to the statutory responsibilities of the agency. The EIR will be used by Chino Basin Watermaster when considering approval of the OBMPU and related documents.

In accordance with CEQA, comments to the NOP must be received by IEUA no later than 30 days after publication of this notice. The review period for this NOP is from February 10, 2020 to March 10, 2020. We request that comments to this NOP be received no later than March 10, 2020.

Please include a return address and contact name with your comments and send them via mail or email to the address shown below:

Ms. Sylvie Lee, P.E.
Inland Empire Utilities Agency
6075 Kimball Avenue
Chino, CA 91708
Email: Slee@ieua.org; Telephone: 909-993-1600

Notice of Public Scoping Meeting:

A public scoping meeting will be held to receive verbal public comments and suggestions on the environmental issues associated with implementation of the OBMPU that will be addressed in the EIR. It will include a brief presentation providing an overview of the facilities proposed in the OBMPU. After the presentation, oral comments will be accepted. Written comment forms will be made available for those who wish to submit comments in writing at the scoping meeting. The scoping meeting will be open to the public and held at the following location:

Inland Empire Utility Agency
Agency Headquarters, Board Room
6075 Kimball Avenue, Building A
Chino, CA 91708

At 6:00 PM on Thursday, February 27, 2020

OFFICE OF PLANING AND RESEARCH
STATE CLEARINGHOUSE
1400 TENTH STREET
SACRAMENTO CA 95814
(submitted electronically & logged 2-10-20)

CALIFORNIA AIR RESOURCES BOARD
1001 "I" STREET
SACRAMENTO CA 95814

CALIFORNIA DEPARTMENT OF JUSTICE
ATTORNEY GENERAL'S OFFICE
PO BOX 944255
SACRAMENTO CA 94244-2550

CALIFORNIA DEPARTMENT OF PUBLIC HEALTH
PO BOX 997377, MS 0500
SACRAMENTO CA 95899-7377

CALIFORNIA DEPARTMENT OF RESOURCES RECYCLING & RECOVERY (CALRECYCLE)
PO BOX 4025
SACRAMENTO CA 95812-4025

CALIFORNIA DEPARTMENT OF TOXIC SUBSTANCES CONTROL
1001 "I" STREET
SACRAMENTO CA 95814-2828

CALTRANS, DISTRICT 7
ENVIRONMENTAL PLANNING
DAWN KUKLA-MONTANO
100 S MAIN STREET
LOS ANGELES CA 90012
(resent w/ contact info on 2-19-20)

CALTRANS, DISTRICT 7
INTERGOVERNMENTAL REVIEW UNIT
100 S MAIN STREET
LOS ANGELES CA 90012
(sent on 2-20-20)

CALTRANS, DISTRICT 8
JOHN BULINSKI
464 W 4TH STREET
SAN BERNARDINO CA 92401

CALIFORNIA DEPARTMENT OF WATER RESOURCES (DWR)
1416 9TH STREET
SACRAMENTO CA 95814

CALIFORNIA DEPT OF CONSERVATION
DAVID BUNN
801 K STREET, MS 24-01
SACRAMENTO CA 95814

CALIFORNIA DEPT OF FISH & WILDLIFE (REGION 6)
3602 INLAND EMPIRE BLVD, SUITE C-220
ONTARIO CA 91764

CALIFORNIA DEPT OF HOUSING & COMMUNITY DEVELOPMENT
DOUG MCCAULEY
3737 MAIN STREET, SUITE 400
RIVERSIDE CA 92501

CALIFORNIA INSTITUTION FOR MEN
MONA HOUSTON
14901 CENTRAL AVENUE
CHINO CA 91710

CHINO AIRPORT
JAMES JENKINS
7000 MERRILL AVENUE
CHINO CA 91710

CHINO BASIN DESALTER AUTHORITY
TOM O'NEILL
2151 S HAVEN AVENUE, SUITE 202
ONTARIO CA 91761

CHINO BASIN WATER CONSERVATION DISTRICT
ELIZABETH SKRZAT
4594 SAN BERNARDINO STREET
MONTCLAIR CA 91763

CHINO BASIN WATERMASTER
PETER KAVOUNAS
9641 SAN BERNARDINO ROAD
RANCHO CUCAMONGA CA 91730

CHINO VALLEY FIRE DISTRICT
TIM SHACKELFORD
14011 CITY CENTER DRIVE
CHINO HILLS CA 91709

CITY OF CHINO
AMER JAKHER
PO BOX 667
CHINO CA 91708-0067

CITY OF CHINO
DAVID CROSLEY
PO BOX 667
CHINO CA 91708-0067

CITY OF CHINO HILLS
DANIEL BOBADILLA
14000 CITY CENTER DRIVE
CHINO HILLS CA 91709

CITY OF CHINO HILLS
MARK WILEY
14000 CITY CENTER DRIVE
CHINO HILLS CA 91709

CITY OF EASTVALE
12363 LIMONITE AVENUE
SUITE 910
EASTVALE CA 91752

CITY OF FONTANA
CHUCK HAYS
16489 ORANGE WAY
FONTANA CA 92335

CITY OF FONTANA
MAY ATENCIO
16489 ORANGE WAY
FONTANA CA 92335

CITY OF JURUPA VALLEY
8930 LIMONITE AVENUE
JURUPA VALLEY CA 92509

CITY OF MONTCLAIR
EDWARD C STARR
5111 BENITO STREET
MONTCLAIR CA 91763

CITY OF MONTCLAIR
NOEL CASTILLO
5111 BENITO STREET
MONTCLAIR CA 91763

CITY OF NORCO
2870 CLARK AVENUE
NORCO CA 92860

CITY OF ONTARIO
SCOTT OCHOA
303 EAST "B" STREET
ONTARIO CA 91764

CITY OF ONTARIO
MUNICIPAL UTILITIES COMPANY
SCOTT BURTON
1425 SOUTH BON VIEW
ONTARIO CA 91761

CITY OF ONTARIO
PLANNING DEPARTMENT
SCOTT MURPHY
303 EAST "B" STREET
ONTARIO CA 91764

CITY OF POMONA
505 SOUTH GARVEY AVENUE
POMONA CA 91766

CITY OF RANCHO CUCAMONGA
JOHN GILLISON
10500 CIVIC CENTER DRIVE
RANCHO CUCAMONGA CA 91730

CITY OF UPLAND
ROSEMARY HOERNING
460 N EUCLID AVENUE
UPLAND CA 91786

CITY OF UPLAND
NICOLE DEMOET
1370 N BENSON AVENUE
UPLAND CA 91786

CALIFORNIA MILK PRODUCERS
ROB VANDENHEUVEL
13545 S EUCLID AVENUE, UNIT B
ONTARIO CA 91762

CUCAMONGA VALLEY WATER DISTRICT
JOHN BOSLER
10440 ASHFORD STFEET
RANCHO CUCAMONGA CA 91730

CUCAMONGA VALLEY WATER DISTRICT
EDUARDO ESPINOZA
10440 ASHFORD STREET
RANCHO CUCAMONGA CA 91730

EASTERN MUNICIPAL WATER DISTRICT
PAUL D. JONES II
PO BOX 8300
PERRIS CA 92572-8300

FONTANA WATER COMPANY
JOSH SWIFT
15966 ARROW ROUTE
FONTANA CA 92335

INLAND EMPIRE RESOURCE
CONSERVATION DISTRICT
MANDY PARKES
25864-K BUSINESS CENTER DRIVE
REDLANDS CA 92374

INLAND EMPIRE UTILITIES AGENCY
SYLVIE LEE
6075 KIMBALL AVENUE
CHINO CA 91708

JURUPA COMMUNITY SERVICES DISTRICT
CHRIS BERCH
11201 HARREL STREET
JURUPA VALLEY CA 91752

METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
PO BOX 54153
LOS ANGELES CA 90054-0153

MONTE VISTA WATER DISTRICT
JUSTIN SCOTT-COE
10575 CENTRAL AVENUE
MONTCLAIR CA 91763

MONTE VISTA WATER DISTRICT
VAN JEW
10575 CENTRAL AVENUE
MONTCLAIR CA 91763

NATURAL RESOURCES CONSERVE
SERVICE
25864 BUSINESS CENTER DRIVE, STE K
REDLANDS CA 92374-4515

ORANGE COUNTY SANITATION DISTRICT
JIM HERBERG
10844 ELLIS AVENUE
FOUNTAIN VALLEY CA 92708

ORANGE COUNTY WATER DISTRICT
MICHAEL R MARKUS
18700 WARD STREET
FOUNTAIN VALLEY CA 92708

REGIONAL WATER QUALITY CONTROL
BOARD, SANTA ANA REGION
HOPE SMYTHE
3737 MAIN STREET, SUITE 500 RIVERSIDE
CA 92501-3348

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RIVERSIDE CALIFORNIA 92501

RIVERSIDE COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT
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UPLAND CA 91786-6036

SAN BERNARDINO COUNTY DEPARTMENT
OF PUBLIC HEALTH
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351 NORTH MT VIEW AVENUE
SAN BERNARDINO CA 92415-0010

SAN BERNARDINO COUNTY DIVISION OF
ENVIRONMENTAL HEALTH SERVICES
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SAN BERNARDINO CA 92415

SAN BERNARDINO COUNTY FIRE
DEPARTMENT
HAZARDOUS MATERIALS DIVISION
IONIE WALLACE
620 SOUTH "E" STREET
SAN BERNARDINO CA 92415-0153

SAN BERNARDINO COUNTY FLOOD
CONTROL DISTRICT
KEVIN BLAKESLEE
825 EAST THIRD STREET
SAN BERNARDINO CA 92415

SAN BERNARDINO COUNTY LAND USE
SERVICES DEPARTMENT
385 N ARROWHEAD AVENUE
SAN BERNARDINO CA 92415-0182

SAN BERNARDINO COUNTY LIBRARY
CHINO BRANCH
EDWARD DIGGINS
13180 CENTRAL AVENUE
CHINO CA 91710

SAN BERNARDINO COUNTY LIBRARY
CHINO HILLS BRANCH
SHAUNA MERRYMAN
14020 CITY CENTER DRIVE
CHINO HILLS CA 91709-5442

SAN BERNARDINO VALLEY MUNICIPAL
WATER DISTRICT
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380 EAST VANDERBILT WAY
SAN BERNARDINO CA 92408

SAN GABRIEL VALLEY WATER COMPANY
11142 GARVEY AVENUE
EL MONTE CA 91733

SANTA ANA RIVER WATER COMPANY
10530 54TH STREET
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SANTA ANA WATERSHED PROJECT
AUTHORITY
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MANAGEMENT DISTRICT
PHILLIP FINE
21865 E COPLEY DRIVE
DIAMOND BAR CA 91765

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GOVERNMENTS
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1170 WEST 3RD STREET, SUITE 140
SAN BERNARDINO CA 92410

SOUTHERN CALIFORNIA EDISON
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2244 WALNUT GROVE AVENUE
ROSEMEAD CA 91770

SOUTHERN CALIFORNIA GAS COMPANY
TECHNICAL SERVICES
PO BOX 3150
SAN DIMAS CA 91773

STATE WATER RESOURCES CONTROL
BOARD
1001 “I” STREET
SACRAMENTO CA 95814

STATE WATER RESOURCES CONTROL
BOARD DIVISION OF DRINKING WATER
DISTRICT 13,
SEAN MCCARTHY
464 W 4TH STREET ROOM 437
SAN BERNARDINO CA 92401

THREE VALLEYS MUNICIPAL WATER
DISTRICT
MATTHEW LITCHFIELD
1021 E MIRAMAR AVENUE
CLAREMONT CA 91711-2052

US ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT
915 WILSHIRE BLVD, SUITE 1101
LOS ANGELES CA 90017

~~US ARMY CORPS OF ENGINEERS~~
~~SOUTH PACIFIC DIVISION~~
~~1455 MARKET STREET~~
~~SAN FRANCISCO CA 94103-1398~~
Returned as undeliverable

US FISH & WILDLIFE SERVICE
2800 COTTAGE WAY, ROOM W-2606
SACRAMENTO CA 95825-1846

USDA-NRCS
REDLAND SERVICE CENTER
JAMES EARSON
25864-K BUSINESS CENTER DRIVE
REDLANDS CA 92374

WATER FACILITIES AUTHORITY
1775 BENSON AVENUE
UPLAND CA ~~91786~~ 91784

WESTERN MUNICIPAL WATER DISTRICT
14205 MERIDIAN PARKWAY
RIVERSIDE CA 92518

WEST VALLEY WATER DISTRICT
855 W BASE LINE ROAD
RIALTO CA 92376

APPENDIX 8.2

INITIAL STUDY

INITIAL STUDY

FOR THE

CHINO BASIN WATERMASTER
OPTIMUM BASIN MANAGEMENT PROGRAM UPDATE

Prepared for:

Inland Empire Utilities Agency
6075 Kimball Avenue
Chino, California 91708
(909) 993-1600

Implementing Agency:

Chino Basin Watermaster
9641 San Bernardino Road
Rancho Cucamonga, CA 91730

Prepared by:

Tom Dodson & Associates
2150 North Arrowhead Avenue
San Bernardino, California 92405
(909) 882-3612

In association with Wildermuth Environmental, Inc.

February 2020

TABLE OF CONTENTS

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LIST OF EXHIBITS

LIST OF FIGURES

ATTACHMENTS

ABBREVIATIONS AND ACRONYMS

AFY or afy	acre-feet per year
AMP	Adaptive Monitoring Program
ASR	Aquifer Storage and Recovery
Basin Plan	Santa Ana River Basin
CASGEM	California Statewater Groundwater Elevation Monitoring Program
CCWF	Chino Creek Well Field
CCWRF	Carbon Canyon Water Recycling Facility
CDA	Chino Basin Desalter Authority
CEQA	California Environmental Quality Act
CIM	Chino Institute for Men
Court	California State Superior Court for San Bernardino County
DDW	Division of Drinking Water
DFW	Department of Fish and Wildlife
DTSC	Department of Toxic Substances Control
DWR	Department of Water Resources
DYYP	Dry-Year Yield Program
EDMs	electronic distance measurements
FMSB	First Managed Storage Band
FWC	Fontana Water Company
GE	General Electric
GLMC	Ground-Level Monitoring Committee
GMZ	Groundwater Management Zone
HP	horsepower
IEUA	Inland Empire Utilities Agency
IMP	Interim Monitoring Program
IP	Implementation Plan
IX	RO/ion exchange
JCSD	Jurupa Community Services District
Judgment	Chino Basin Municipal Water District vs. City of Chino et al.
MAR	Managed Aquifer Recharge
MCLs	maximum contaminant levels
MGD	million gallons per day
MPI	Material Physical Injury
MS4	Municipal Separate Storm Sewer System
MVWD	Monte Vista Water District
MZ-1	Management Zone 1
NLs	notification levels
OBMP	Optimum Basin Management Program
PBHSP	Prado Basin Habitat Sustainability Program
PEs	Program Elements
PFAS	per-and polyfluoroalkyl substances
PFOA	perfluorooctnoic acid
PFOS	perfluorooctane sulfonate

POTW	Publicly-owned Treatment Works
Regional Board	Santa Ana Regional Water Quality Control Board
RIPComm	Recharge Investigations and Projects Committee
RMPU	Recharge Master Plan Update
RO	reverse osmosis
RODs	Records of Decisions
RP	Regional Plant
SEIR	Supplemental Environmental Impact Report
SFI	Storage Framework Investigation
SGMA	Sustainable Groundwater Management Act
SMP	Storage Management Plan
SNMP	Salt-and-Nutrient Management Plan
SSC	Safe Storage Capacity
SWRCB	State Water Resources Control Board
TDS	total dissolved solids
TIN	total inorganic nitrogen
TOC	total organic carbon
USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey
UV	ultraviolet
VOC	volatile organic compound
WEI	Wildermuth Environmental, Inc.
WFA	Water Facilities Authority

ENVIRONMENTAL CHECKLIST FORM

INTRODUCTION

Project Title:	Chino Basin Watermaster Optimum Basin Management Program Update (OBMPU)
Lead Agency Name:	Inland Empire Utilities Agency
Address:	6075 Kimball Avenue, Chino, CA 91708
Contact Person:	Ms. Sylvie Lee, P.E.
Phone Number:	(909) 993-1600

Project Location: The Chino Basin covers approximately 235 square miles within the Upper Santa Ana River Watershed and lies within portions of San Bernardino, Riverside, and Los Angeles counties. Exhibit 1 shows the location of the Chino Basin within the Upper Santa Ana River Watershed. The Chino Basin consists of an alluvial valley that is relatively flat from east to west, sloping from north to south at a one to two percent grade. Basin elevation ranges from about 2,000 feet adjacent to the San Gabriel foothills to about 500 feet near Prado Dam. As shown in Exhibit 2, the Chino Basin is bounded:

- on the north by the San Gabriel Mountains and the Cucamonga Basin;
- on the east by the Rialto-Colton Basin, Jurupa Hills, and the Pedley Hills;
- on the south by the La Sierra Hills and the Temescal Basin; and
- on the west by the Chino Hills, Puente Hills, and the Spadra, Pomona, and Claremont Basins.

Project Sponsor's Name and Address:	Chino Basin Watermaster 9641 San Bernardino Road Rancho Cucamonga, CA 91730
Present Land Use / Zoning / General Plan Designation:	Multiple

Detailed Project Description:
(All exhibits are located at the end of this section, not immediately following their reference in text.)

1. INTRODUCTION

This chapter contains a detailed description of the proposed project, the Optimum Basin Management Program Update (OBMPU), with focus on those program characteristics and activities that have the potential to cause a direct physical change in the environment, or a reasonably foreseeable indirect physical change to the environment. This project description focuses on the relationship between OBMPU Program Elements and activities and facilities proposed by the overall OBMPU programs that may be implemented if the proposed program is approved by the Chino Basin Watermaster (subsequently referred to as CBWM or Watermaster). However, because the CBMW is not considered a public agency, the Inland Empire Utilities Agency (IEUA), whose service area encompasses most of the Chino Basin, will serve as the Lead Agency for this environmental document and compliance with the California Environmental

Quality Act (CEQA). Actual implementation of the OBMPU activities described herein may be carried out by the CBWM or any of its member agencies/stakeholders in the Chino Groundwater Basin (Chino Basin) through the planning period, 2020 through 2050.

The description of the OBMPU's scope in this document is of necessity expansive as it covers the nine (9) Program Elements (PEs) that make up the original OBMP, and which were analyzed in a 2000 Program Environmental Impact Report (2000 PEIR). The OBMP is the program developed by the Watermaster and stakeholders under the discretionary authority given to the Watermaster Board by the 1978 Judgment. This document contains the management actions to achieve the four goals identified and discussed below. The OBMP is often defined as an aspirational document. The OBMP Implementation Plan (IP) describes the implementation plan for the Chino Basin Management Program. The goals and objectives for the OBMP are described in Section 3 of the Phase 1 OBMP report dated August 1999. Nine program elements were developed during the OBMP Phase 1 process to meet the goals of the OBMP. The Implementation Plan provides time certain and concrete actions to achieve the goals in the OBMP Phase 1 Report.

The OBMPU is intended to address possible program activities and projects at a programmatic level over the next 30 years, with some site-specific detail where near-term future locations of facilities are known. The CBWM and stakeholders have been meeting to review Program Elements and define potential project activities and facilities for about the past two years. Since the Inland Empire Utilities Agency (IEUA) has jurisdiction throughout most of the Chino Basin, it has agreed to serve as the Lead Agency for purposes of complying with the California Environmental Quality Act (CEQA). The CBWM and parties/stakeholders of the OBMPU and regulatory agencies that will function as CEQA Responsible Agencies will have the option of relying upon this CEQA document for any future actions they take in support of the proposed program or an individual project described in this environmental document (Section 15268, State CEQA Guidelines). Where necessary in the future second-tier environmental documents may be prepared for specific projects (Section 15162, State CEQA Guidelines).

In conjunction with this project description, CBWM and IEUA have authorized the preparation of a detailed Initial Study (attached) to determine whether the OBMPU, as defined below, has the potential to cause any significant adverse environmental impacts. Based on the findings in this Initial Study, a decision has been made to circulate this Initial Study which recommends that a focused Environmental Impact Report (PEIR) be prepared to address environmental issues that may result in potentially significant adverse environmental impacts.

The OBMPU and its associated activities are so interrelated that they merit consideration under a single CEQA document. CBWM and IEUA are in the unique position to evaluate implementation of the OBMPU on behalf of the Chino Basin as they integrate management of water supply, wastewater and groundwater management over the next 30 years and derive important benefits through cooperation with all other water management agencies and stakeholders in the Chino Basin.

This current environmental review is the most recent in a series of environmental documents that began in 1999-2000 when the original OBMP PEIR was published and certified. These documents include the following:

- *Final Program Environmental Impact Report for the Optimum Basin Management Program* (SCH#200041047), July 2000 prepared by Tom Dodson & Associates (2000 OBMP PEIR)

- *Final Program Environmental Impact Report for the Wastewater Facilities Master Plan, Recycled Water Master Plan, Organics Management Master Plan* (SCH#2002011116), June 2002 prepared by Tom Dodson & Associates
- *Final Subsequent Environmental Impact Report for Inland Empire Utilities Agency Peace II Project* (SCH#2000041047), September 2010 prepared by Tom Dodson & Associates (2010 Peace II SEIR)
- *IEUA Facilities Master Plan Final Environmental Impact Report* (SCH#2016061064), February 2017 prepared by ESA (2017 FMP EIR)
- *IEUA Addendum to 2000 OBMP PEIR*, March 2017 prepared by Tom Dodson & Associates (2017 OBMP Addendum)

These documents were prepared to address planned water, wastewater, biosolids, and recycled water management activities in the Chino Basin as called for by the OBMP's Program Elements, originally analyzed in the 2000 OBMP PEIR. Each document addresses changes in management activities at different times over the past 20 years and each document provides an important update of environmental conditions and management activity impact forecasts on the environment. These updates and forecasts provide a fundamental building block of support for local agencies can rely on when seeking funding from state or federal agencies that provide grants or loans to implement the facilities required to meet the then current management objectives/requirements within the Chino Basin. Some examples of such facilities already implemented and supported by previous environmental documents include the Chino Basin desalters, recharge basin utilization, pipelines to convey water from points of origin to points of use, and aquifer storage and recovery wells.

The OBMPU is being analyzed in this updated environmental document for several reasons:

1. First, while the OBMP goals have been partially achieved, the understanding of the hydrology and hydrogeology of the Chino Basin has substantially improved since 2000. This understanding opens up opportunities to revise the OBMP for the benefit of the Chino Basin parties.
2. Second, updated programs, such as the Updated Storage Management Plan, have been identified that will affect most of the OBMP Program Elements (described in detail in the following text).
3. Third, there are new water management issues have been identified that necessitate adapting the OBMP to protect the collective interests of the Chino Basin parties and their water supply reliability. Specific examples include: adaptation to climate change (including future drought conditions); focused management activities to address salt balance in the Chino Basin; and the emergence of environmental management issues affecting the whole of the Upper Santa Ana River Watershed.
4. State and federal agencies that provide funding for water management projects typically want to have an environmental document that contains a current environmental data base. The OBMPU environmental document will establish an appropriate environmental baseline for both new and revised facilities for the near future. The most recent Basin-wide water management environmental document is now 10 years old (Peace II, 2010) and no longer contains a current environmental baseline.

2. PROJECT LOCATION

The Chino Basin is one of the largest groundwater basins in Southern California and has an unused storage capacity of over 1,000,000 acre-feet. The Chino Basin covers approximately 235 square miles within the Upper Santa Ana River Watershed and lies within portions of San Bernardino, Riverside, and Los Angeles counties. Exhibit 1 shows the location of the Chino Basin within the Upper Santa Ana River Watershed. The Chino Basin consists of an alluvial valley that is relatively flat from east to west, sloping from north to south at a one to two percent grade. Basin elevation ranges from about 2,000 feet adjacent to the San Gabriel foothills to about 500 feet near Prado Dam. As shown in Exhibit 2, the Chino Basin is bounded:

- on the north by the San Gabriel Mountains and the Cucamonga Basin;
- on the east by the Rialto-Colton Basin, Jurupa Hills, and the Pedley Hills;
- on the south by the La Sierra Hills and the Temescal Basin; and
- on the west by the Chino Hills, Puente Hills, and the Spadra, Pomona, and Claremont Basins.

The 2000 Optimum Basin Management Program (OBMP), focused on management actions within the Chino Groundwater Basin (Chino Basin or the Basin) as shown on the inset in Exhibit 1. Exhibit 2 illustrates the boundary of the Chino Basin as it is legally defined in the stipulated Judgment in the case of Chino Basin Municipal Water District *vs.* the City of Chino *et al.* Exhibit 2 also shows the Regional Water Quality Control Board, Santa Ana Region (Regional Board) management zones as established in the Water Quality Control Plan for the Santa Ana River Basin (Basin Plan).

The principal drainage course for the Santa Ana River watershed is the Santa Ana River. It flows 69 miles across the Santa Ana Watershed from its origin in the eastern San Bernardino Mountains to the Pacific Ocean. The Santa Ana River enters the Chino Basin at the Riverside Narrows and flows along the southern boundary to the Prado Flood Control Reservoir, where it is eventually discharged through the outlet at Prado Dam and flows the remainder of its course to the Pacific Ocean. The Basin is traversed by a series of ephemeral and perennial streams that include: San Antonio Creek, Chino Creek, Cucamonga Creek, Deer Creek, Day Creek, Etiwanda Creek and San Sevaine Creek. Please refer to Exhibit 2 for the location of drainages.

These creeks flow primarily north to south and carry significant natural flows only during, and for a short time after, the passage of Pacific storm fronts that typically occur from November through April. IEUA discharges year-round flows to Chino Creek and to Cucamonga Channel from its Regional Plants. The actual volume of wastewater discharges varies seasonally and is expected to be attenuated in the future by a combination of water conservation measures being implemented by water users and through diversion of flows for delivery as recycled water to future users that can utilize this source of water, including landscape irrigation, industrial operations, and recharge into the Chino Basin groundwater aquifer.

The Chino Basin is mapped within the USGS – Corona North, Cucamonga Peak, Devore, Fontana, Guasti, Mount Baldy, Ontario, Prado Dam, Riverside West and San Dimas Quadrangles, 7.5 Minute Series topographic maps. The center of the Basin is located near the intersection of Haven Avenue and Mission Boulevard at Latitude 34.038040N, and Longitude -117.575954W.

3. PROJECT PURPOSE AND OBJECTIVES

The *2020 Optimum Basin Management Program Update Report* (2020 OBMP Update Report), released in July 2019 by CBWM, documents the stakeholder process that was used to update the OBMP and it describes the 2020 OBMP Management Plan. The management plan forms the basis for the 2020 OBMP Implementation Plan Update. Through this process, the stakeholders concluded that the goals of the 2020 OBMP Update should be identical to the 2000 OBMP goals.

Accordingly, the 2020 OBMPU's goals remain the same as the 2000 OBMP's goals:

Goal No. 1 - Enhance Basin Water Supplies. The intent of this goal is to increase the water supplies available for Chino Basin Parties and improve water supply reliability. This goal applies to Chino Basin groundwater and all other sources of water available for beneficial use.

Goal No.2 - Protect and Enhance Water Quality. The intent of this goal is to ensure the protection of the long-term beneficial uses of Chino Basin groundwater.

Goal No.3 - Enhance Management of the Basin. The intent of this goal is to encourage sustainable management of the Chino Basin to avoid Material Physical Injury, promote local control, and improve water-supply reliability for the benefit of all Chino Basin Parties.

Goal No. 4 - Equitably Finance the OBMP. The intent of this goal is to identify and use efficient and equitable methods to fund OBMP implementation.

4. PROJECT CHARACTERISTICS (Original OBMP, OBMP Implementation to Date, and OBMPU Program Elements)

4.1 Introduction

The Optimum Basin Management Program (OBMP) is a regional water resources and groundwater management program for the Chino Basin. The location of the Chino Basin is shown in Exhibit 1. On January 2, 1975, several Chino Basin groundwater producers filed suit in the California State Superior Court for San Bernardino County (Court) to settle the problem of allocating water rights in the Chino Basin. On January 27, 1978, the Court entered a judgment in "Chino Basin Municipal Water District v. City of Chino et. al." (Judgment). The Judgment adjudicated the groundwater rights of the Chino Basin, established the Watermaster--a Court created entity—to administer the Judgment, and contains a Physical Solution to meet the requirements of water users having rights in or dependent upon the Chino Basin. Exhibit 2 shows the adjudicated boundary as it is legally defined in the Judgment, the hydrologic boundary, the Chino Basin management zones, and the groundwater management zones defined by the Santa Ana Regional Water Quality Control Board (Regional Board) in the Water Quality Control Plan for the Santa Ana River Basin (Basin Plan).

4.2 Project Characteristics

Watermaster, at the direction of the Court, began developing the OBMP in 1998 and completed it in July 2000. The OBMP was developed in a collaborative public process that identified the needs and wants of all stakeholders, described the physical state of the groundwater basin, defined a set of management goals, characterized impediments to those goals, and developed a series of actions that could be taken to remove the impediments and achieve the management goals. This work was documented in the *Optimum Basin Management Program – Phase I Report* (OBMP Phase 1 Report).[1]

The four goals of the 2000 OBMP included:

Goal 1 – Enhance Basin Water Supplies
Goal 2 – Protect and Enhance Water Quality
Goal 3 – Enhance Management of the Basin
Goal 4 – Equitably Finance the OBMP

The actions defined by the stakeholders to remove the impediments to the OBMP goals were logically grouped into sets of coordinated activities called Program Elements (PEs), each of which included a list of implementation actions and an implementation schedule. The nine PEs defined in the 2000 OBMP included:

PE 1 – Develop and Implement Comprehensive Monitoring Program. The objectives of the comprehensive monitoring program are to collect the data necessary to support the implementation of the other eight PEs and periodic updates to the *State of the Basin Report*.[2]

PE 2 – Develop and Implement Comprehensive Recharge Program. The objectives of the comprehensive recharge program include increasing stormwater recharge to offset the recharge lost due to channel lining, to increase Safe Yield, and to ensure that there will be enough supplemental water recharge capacity available to Watermaster to meet its Replenishment Obligations.

PE 3 – Develop and Implement a Water Supply Plan for Impaired Areas. The objective of this program is to maintain and enhance Safe Yield with a groundwater desalting program that is designed to replace declining agricultural groundwater pumping in the southern part of the basin with new pumping to meet increasing municipal water demands in the same area, to minimize groundwater outflow to the Santa Ana River, and to increase Santa Ana River recharge into the basin.

PE 4 – Develop and Implement Comprehensive Groundwater Management Plan for Management Zone 1. The objectives of this land subsidence management program are to characterize the spatial and temporal occurrence of land subsidence, to identify its causes, and, where appropriate, to develop and implement a program to minimize or stop land subsidence.

PE 5 – Develop and Implement Regional Supplemental Water Program. The objective of this program is to improve the regional conveyance and availability of imported and recycled waters throughout the basin.

PE 6 – Develop and Implement Cooperative Programs with the Regional Board and Other Agencies to Improve Basin Management. The objectives of this water quality management program are to identify water quality trends in the basin and the impact of the OBMP implementation on them, to determine whether point and non-point contamination sources are being addressed by water quality regulators, and to collaborate with water-quality regulators to identify and facilitate the cleanup of soil and groundwater contamination.

PE 7 – Develop and Implement Salt Management Plan. The objectives of this salinity management program are to characterize current and future salt and nutrient conditions in the basin and to develop and implement a plan to manage them.

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[1] WEI. (1999). *Optimum Basin Management Program – Phase I Report*. Prepared for the Chino Basin Watermaster. August 19, 1999. http://www.cbwm.org/docs/engdocs/OBMP%20-%20Phase%20I%20(Revised%20DigDoc).pdf

[2] See for example: WEI (2019). *Optimum Basin Management Program 2018 State of the Basin Report*. Prepared for the Chino Basin Watermaster. June 2018. http://cbwm.org/docs/engdocs/State_of_the_Basin_Reports/SOB%202018/2018%20State%20of%20the%20Basin%20Report.pdf

PE 8 – Develop and Implement Groundwater Storage Management Program. The objectives of this storage program are to implement and periodically update a storage management plan that prevents overdraft, protects water quality, and ensures equity among the Parties, and to periodically recalculate Safe Yield. This PE explicitly defined the storage management plan, including a "Safe Storage Capacity" for the managed storage of 500,000 acre-feet (af)–inclusive of Local and Supplemental Storage and Storage and Recovery Programs.

PE 9 – Develop and Implement Storage and Recovery Programs. The objectives of this conjunctive use program are to develop Storage and Recovery Programs that will provide broad mutual benefit to the Parties and ensure that Basin Water and storage capacity are put to maximum beneficial use while causing no Material Physical Injury (MPI). MPI means material injury that is attributable to the recharge, transfer, storage and recovery, management, movement or production of water, or implementation of the OBMP, including, but not limited to, degradation of water quality, liquefaction, land subsidence, increases in pump lift (lower water levels), and adverse impacts associated with rising groundwater. MPI does not include "economic injury" that results from other than physical causes. Once fully mitigated, physical injury shall not be considered to be material. (From Peace Agreement Definitions, page 8)

The PEs and their associated implementation actions (facilities and operations) were incorporated into a recommended management plan. The Parties used the management plan as the basis for developing the OBMP Implementation Plan (which identified specific projects for implementation under the OBMP) and an agreement between the Watermaster parties and stakeholders (the Peace Agreement, see the final section of this project description for a list of Watermaster parties) to implement it. The OBMP Implementation Plan is Exhibit B to the Peace Agreement. The Peace Agreement was reviewed in the 2000 OBMP PEIR.

The Parties entered into the Peace Agreement in June 2000. Under Resolution 2000-05,[3] Watermaster adopted the goals and plans of the OBMP Phase 1 Report and agreed to proceed in accordance with the Peace Agreement and the OBMP Implementation Plan. Following a July 2000 hearing, the Court directed Watermaster to proceed in a manner consistent with the Peace Agreement in order to implement the OBMP and received and filed the PEIR.

For the purposes of the discussions herein, the term "OBMP" refers to the collective programs implemented by Watermaster and others (e.g. IEUA, Chino Basin Desalter Authority [CDA], etc.) pursuant to the Peace Agreements (see discussion of Peace II below), the OBMP Implementation Plan, the PEIR, and any amendments to these documents.

4.2.1 2007 Supplement to the OBMP Implementation Plan and the Peace II Agreement

The work to develop the OBMP determined that the groundwater production of the Chino Basin Desalters (see Section 4.3.3) would ultimately need to be 40,000 acre-feet per year (afy) to accomplish the goals of the OBMP. The Chino I Desalter production capacity prior to the Peace Agreement was 8 million gallons per day (mgd; 9,000 afy). The Peace Agreement provided for the expansion of the Chino I Desalter to up to 14 mgd (15,700 afy) and the construction of the Chino II Desalter, with a production capacity of 10 mgd. The Peace Agreement required a minimum combined Desalter production capacity of 20 mgd (22,400 afy) and it committed the Parties to developing expansion and funding plans for the remaining capacity within five years of approval of the Peace Agreement. The Parties developed the Peace II Agreement, which included provisions to expand the desalting capacity such that groundwater production reaches 40,000

[3] Chino Basin Watermaster. (2002). The Resolution approving the OBMP is provided on the Watermaster's website.

afy. The Peace II Agreement introduced Re-operation[4] to achieve Hydraulic Control[5] of the Chino Basin and maintain Safe Yield (the rate of extraction for consumptive use that can be maintained indefinitely within the limits of economic feasibility and under specified conditions of water supply development). Hydraulic Control is both a goal of the OBMP and a requirement of the maximum benefit salt-and-nutrient management plan (maximum benefit SNMP, which is discussed on P. 34) that was developed by Watermaster and the IEUA under PE 7 to enable the expansion of recycled water recharge and reuse throughout the basin under PEs 2 and 5.

The Parties executed the Peace II Agreement in 2007, which included a supplement to the OBMP Implementation Plan to expand the Chino Basin Desalters to 40,000 afy of groundwater pumping, to incorporate Re-operation and Hydraulic Control, and to resolve other issues. There were no changes to the storage management plan in the OBMP Implementation Plan as a result of Peace II.

The IEUA Board certified a supplemental environmental impact report (SEIR) for the Peace II Agreement in 2010 (IEUA Addendum to 2000 OBMP PEIR).

4.2.2 2017 Addendum to the OBMP PEIR

In 2016, Watermaster identified the need to update the storage management plan in the OBMP Implementation Plan because the total amount of water in managed storage accounts was projected to exceed the Safe Storage Capacity (SSC) limit of 500,000 af defined in the 2000 OBMP. In 2017, the IEUA adopted an addendum to the SEIR to provide a "temporary increase in the Safe Storage Capacity from 500,000 acre-feet (af) to 600,000 af for the period of July 1, 2017 through June 30, 2021 […] until a comprehensive re-evaluation of the Safe Storage Capacity value/concept can be completed before June 30, 2021."[6] The addendum was supported with engineering work that demonstrated that this temporary increase in SSC would not cause material physical injury (MPI) or loss of Hydraulic Control.

4.2.3 Need for the 2020 Optimum Basin Management Program Update (OBMPU)

The 2000 OBMP contains a set of management programs (the PEs) that improve the reliability and long-term sustainability of the Chino Basin and the water supply reliability of the Judgment Parties. The framework for developing the OBMP—including the goals of the Parties, the hydrologic understanding of the basin, the institutional and regulatory environment, an assessment of the impediments to achieving the Parties' goals, and the actions required to remove the impediments and achieve the goals—were all based on 1998-1999 conditions and valid planning assumptions at that time.

As of 2020, many of the projects and management programs envisioned in the 2000 OBMP have been and continue to be implemented; though some have not. The understanding of the hydrology and hydrogeology of the Chino Basin has improved since 2000, and new water-management issues have been identified. The strategic drivers and trends that shaped the goals and implementation actions of the OBMP in the late 1990s have since changed. And, there are several

[4] Re-operation is the controlled overdraft of the basin by the managed withdrawal of groundwater pumping for the Chino Basin Desalters and the potential increase in the cumulative un-replenished pumping from the 200,000 acre-feet authorized by paragraph 3 of the Engineering Appendix Exhibit I to the Judgment, to 600,000 acre-feet for the express purpose of securing and maintaining Hydraulic Control as a component of the Physical Solution.
[5] Hydraulic Control is the elimination of groundwater discharge from the Chino-North Groundwater Management Zone to the Santa Ana River or its reduction to less than 1,000 afy.
[6] Tom Dodson & Associates. (2017). *Addendum No. 1 to the Optimum Basin Management Program Project*. Page 2.

drivers and trends in today's water management space that may challenge the ability of the Parties to protect their collective interests in the Chino Basin and their water supply reliability.

Exhibit 3 characterizes the drivers and trends shaping water management and their basin management implications for the Parties. "Drivers" are external forces that cause changes in the Chino Basin water space, such as climate change, regulations, and funding. Grouped under each driver are expected trends that emanate from that driver. For example, trends associated with climate change include reduced groundwater recharge, increased evaporation, and reduced imported water supply. The relationship of the drivers/trends to the management implications are shown by arcs that connect trends to implications. For example, a management implication of reduced groundwater recharge is the reduction of the Chino Basin Safe Yield.

As shown in Exhibit 3, growth is one of the drivers shaping water and basin management. As urban land uses replace agricultural and vacant land uses, the water demands of the Chino Basin Parties are expected to increase. The table below summarizes the actual (2015) and projected water demands, water supply plans, and population through 2040. Total water demand is projected to grow from about 290,000 afy in 2015 to about 420,000 afy by 2040, an increase of about 130,000 afy. The projected growth in water demand through 2040 is driven by the Appropriative Pool Parties (defined at the end of the project description), some of which will serve new urban water demands created by the conversion of agricultural and vacant land uses to urban uses.

Table 1
AGGREGATE WATER SUPPLY PLAN FOR WATERMASTER PARTIES: 2015 TO 2040[7]

Water source	2015 (Actual)	2020	2025	2030	2035	2040
Volume (af)						
Chino Basin Groundwater	148,467	139,236	144,314	151,525	164,317	173,522
Non-Chino Basin Groundwater	51,398	55,722	61,741	63,299	64,991	66,783
Local Surface Water	8,108	19,653	19,653	19,653	19,653	19,653
Imported Water from Metropolitan	53,784	90,444	97,657	103,684	105,152	111,036
Other Imported Water	8,861	9,484	10,095	10,975	11,000	11,000
Recycled Water for Direct Reuse	17,554	23,678	24,323	26,910	30,451	33,953
Total	**288,171**	**338,218**	**357,782**	**376,046**	**395,564**	**415,947**
Percentage						
Chino Basin Groundwater	52%	41%	40%	40%	42%	42%
Non-Chino Basin Groundwater	18%	16%	17%	17%	16%	16%
Local Surface Water	3%	6%	5%	5%	5%	5%
Imported Water from Metropolitan	19%	27%	27%	28%	27%	27%
Other Imported Water	3%	3%	3%	3%	3%	3%
Recycled Water for Direct Reuse	6%	7%	7%	7%	8%	8%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
Population (million)*	1.95	2.07	2.21	2.38	2.57	2.73

*The population projection is based on the service area population of all Chino Basin Appropriative Pool agencies. For some Appropriative Pool agencies, the service areas expand outside of the Chino Basin.

[7] Sourced from: WEI. (2019). *Final 2020 Storage Management Plan*. December 2019.

As stated under Section 3, Project Purpose and Objectives, the stakeholders concluded that the goals of the 2020 OBMP Update (OBMPU) are identical to the 2000 OBMP goals. The goals and their intents for the OBMPU include:

Goal No. 1 - Enhance Basin Water Supplies. The intent of this goal is to increase the water supplies available for Chino Basin Parties and improve water supply reliability. This goal applies to Chino Basin groundwater and all other sources of water available for beneficial use.

Goal No.2 - Protect and Enhance Water Quality. The intent of this goal is to ensure the protection of the long-term beneficial uses of Chino Basin groundwater.

Goal No.3 - Enhance Management of the Basin. The intent of this goal is to encourage sustainable management of the Chino Basin to avoid Material Physical Injury, promote local control, and improve water-supply reliability for the benefit of all Chino Basin Parties.

Goal No. 4 - Equitably Finance the OBMP. The intent of this goal is to identify and use efficient and equitable methods to fund OBMP implementation.

4.3 OBMPU Program Elements

There are physical, institutional, and financial impediments to achieving the OBMPU goals. The stakeholders identified and described several management activities that, if implemented, could remove these impediments and achieve the OBMPU goals. These activities have objectives and tasks that are directly related to one or more of the 2000 OBMP PEs. Thus, the nine PEs defined in the 2000 OBMP have been retained for the OBMPU. The OBMPU Implementation Plan Update (OBMPU IP) is a revision of the implementation plans included in the Peace I and Peace II Agreements and incorporates the proposed activities and facilities identified in the 2020 OBMPU and ongoing activities from the 2000 OBMP. The Project Description that follows those projects contained in the OBMPU Implementation Plan (IP) is an update to the OBMP Project Description evaluated in the 2000 OBMP PEIR and the 2010 Peace II SEIR. This environmental document will be used for all of the OBMPU components including the Implementation Plan whose proposed facilities are identified in the following section of this Project Description.

This section describes a series of one-time actions and ongoing management processes, organized by PE, that help achieve the goals of the OBMPU and set the framework for the next 30 years of basin-management activities. The implementation actions are listed by PE in Exhibit 4. Implementation of these management actions may result in the construction and operation of new facilities or the substantial upgrade of existing facilities and their operations. The facilities improvements that could result from the implementation of the OBMPU are listed in Exhibit 5.

For each PE, the following subsections (4.3.1 through 4.3.8) describe: the objectives and implementation actions established in 2000, implementation progress since 2000, and the implementation actions of the OBMPU, including the potential facility improvements that could result from implementation.

4.3.1 Program Element 1. Develop and Implement Comprehensive Monitoring Program

4.3.1.1 Objectives

The objective of PE 1 in the 2000 OBMP—*Develop and Implement Comprehensive Monitoring Program*—was to provide the information necessary to support the implementation of all other

OBMP PEs and to evaluate their performance over time. The OBMPU restates the objective of PE 1: to collect the data and information necessary to support the implementation of all other OBMP PEs and to satisfy other regulations and Watermaster's obligations under its agreements, Court orders, and CEQA.

4.3.1.2 2000 OBMP Project Description and Implementation Progress

Watermaster began implementing its monitoring programs during the development of the 2000 OBMP. Pursuant to the 2000 OBMP Implementation Plan, long-term plans for monitoring groundwater production, groundwater level, groundwater quality, ground level (including remote sensing), surface water, and well construction/destruction monitoring programs have been developed and implemented. The monitoring programs have evolved over time to ensure that the data and information acquired not only meet the OBMP requirements, but also other regulatory requirements and Watermaster obligations under agreements, Court orders, and CEQA. In some instances, the monitoring programs were expanded to satisfy new basin-management initiatives and regulations. In other instances, the scope of the monitoring programs has been reduced with periodic reevaluation and redesign to achieve the monitoring objectives at reduced cost. Below is a summary of these monitoring programs as described in the 2000 OBMP PEIR and their current status:

Groundwater-level monitoring. The 2000 OBMP estimated that about 500 wells would be initially surveyed for groundwater levels to develop a long-term key-well monitoring program. The 2000 OBMP acknowledged that key wells located in agricultural areas would need to be replaced as necessary if the original well is destroyed when the agricultural land is converted to another use. From 1998 to 2001, Watermaster conducted the initial survey and developed the long-term monitoring program. The current groundwater-level monitoring program consists of about 1,300 wells: about 250 wells are measured by Watermaster at monthly to quarterly frequencies and about 1,050 wells are measured by the owners at various frequencies who then report the data to Watermaster. Exhibit 6 is a map that depicts the existing current groundwater-level monitoring program.

Groundwater-quality monitoring. The 2000 OBMP estimated that about 600 wells would be initially surveyed for groundwater quality to develop a long-term key-well monitoring program. The long-term monitoring program would consist of a minimum set of key wells monitored by Watermaster, but the number of wells was not specified. Additional groundwater-quality data would be obtained from the California Division of Drinking Water. From 1999 to 2001, Watermaster conducted the initial survey and developed a long-term monitoring program. The current groundwater-level quality program consists of about 800 wells: about 150 wells are sampled by Watermaster at quarterly to annual frequencies and about 650 wells are measured by the owners at various frequencies who then report it to the State Water Board's Division of Division Water (DDW). Exhibit 7 is a map that depicts the current groundwater-quality monitoring program.

Groundwater-production monitoring. The 2000 OBMP estimated that in-line totalizing flow meters would be installed at about 300 wells owned by private parties within the Agricultural Pool and assumed that Watermaster staff would visit all active wells in the Agricultural Pool to record groundwater-production data. It also assumed that the Appropriative and Overlying Non-Agricultural Pool well owners, and some Agricultural Pool well owners, would report production records to Watermaster. The groundwater-production monitoring program also included reporting of the sources of water used by each producer and how that water is disposed of after use to enable accurate salt budget estimates per PE 7 and for other water management investigations. Meters were installed at most Agricultural Pools wells by 2003. Currently, Watermaster staff monitors groundwater production at 150 agricultural wells, as well as collecting and compiling groundwater-production data reported by the Appropriative and Overlying Non-Agricultural Pool well owners. Exhibit 8 is a map that depicts the current groundwater-production monitoring program.

Surface-water discharge and quality monitoring. The 2000 OBMP estimated that 16 new water-level sensors would be installed at recharge and retention basins to estimate recharge. These water-level meters were installed in 2005 and are currently used to estimate recharge at these basins. It also assumed that Watermaster would assess the existing surface-water discharge and water-quality programs of the Santa Ana River and Chino Basin tributaries to determine the adequacy of the monitoring for characterizing ambient water quality and the impacts of basin management activities. In 2004 Watermaster implemented a surface-water monitoring program as part the maximum benefit monitoring program; this program has been modified over time with approval from the Regional Board. Currently, the program includes compiling discharge and water quality data from existing POTW discharges and USGS stream gaging stations and collecting grab water quality samples from sites along the Santa Ana River. Exhibit 9 is a map that depicts the current surface-water monitoring program.

Ground-level monitoring. The 2000 OBMP assumed that a network of ground-elevation stations in subsidence-prone areas would be installed and surveyed periodically. Currently, the ground-level monitoring program consists of high-frequency, groundwater-level monitoring at wells, remote-sensing and traditional leveling surveys at benchmarks to monitor vertical ground motion, monitoring of the vertical component of aquifer-system compression and expansion at Watermaster extensometer facilities, and measurement of horizontal ground-surface deformation across areas that are experiencing differential land subsidence by electronic distance measurements (EDMs) to understand the potential threats and locations of ground fissuring. Exhibit 10 is a map that depicts the existing ground-level monitoring program.

Well construction, abandonment, and destruction. The 2000 OBMP assumed that Watermaster would develop cooperative agreements with the counties of Los Angeles, Orange, Riverside, and San Bernardino to be informed when a new well has been constructed. Additionally, Watermaster would review its well database, make appropriate inspections, consult with well owners, compile a list of abandoned wells, and request that wells be properly destroyed by the owner. Watermaster continues to implement this program. Watermaster has developed cooperative agreements with the DDW and the Counties of Los Angeles, Orange, Riverside, and San Bernardino to ensure that the appropriate entities know that a new well has been constructed. Watermaster staff makes best efforts to obtain well design information, lithologic and geophysical logs, groundwater-level and quality data, and aquifer-stress testing data.

4.3.1.3 OBMPU Project Description

Exhibit 4 shows the implementation actions for PE 1 under the OBMPU, which include continuing the ongoing monitoring and reporting program described below and developing and updating an *OBMP Monitoring and Reporting Work Plan*. Implementation of these actions may result in the construction of new monitoring facilities in the Chino Basin as described by monitoring type below. The following summarizes each of the Watermaster's ongoing monitoring and reporting programs, and any new monitoring facilities envisioned in the OBMPU, that are needed to comply with regulations or to meet Watermaster's obligations under its agreements, Court orders, and CEQA. Table 2 below is a list of the monitoring and reporting requirements and the associated regulatory entities.

Table 2
WATERMASTER MONITORING AND REPORTING REQUIREMENTS

Monitoring and Reporting Requirement	Requiring Entity					
	Court	State Board	Regional Board	California DFW	California DWR	CEQA
Water Rights Compliance Annual Reports		X		X		
SGMA Annual Report for Adjudicated Basins					X	
Biannual Evaluation of the Cumulative Effect of Transfers	X					
Biannual Evaluation of the Balance of Recharge and Discharge	X					
Annual Finding of Substantial Compliance with the Recharge Master Plan	X					
Annual Report of Compliance with SB 88 and SWRCB Regulations for Measurement and Reporting of Diverted Surface Water		X				
Safe Yield Recalculation	X					
Recharge Master Plan Update (RMPU)	X					
State of the Basin Report	X					
California Statewide Groundwater Elevation Monitoring Program (CASGEM)					X	
Chino Basin Maximum Benefit Annual Report			X			
Annual Report of the Prado Basin Habitat Sustainability Committee						X
Water Recycling Requirements for the Chino Basin Recycled Water Groundwater Recharge Program			X			
Annual Report of the Ground-Level Monitoring Committee	X					
OBMP Semi-Annual Status Reports	X					

Groundwater-level monitoring. Watermaster's groundwater-level monitoring program supports many Watermaster management functions, including: groundwater model development and recalibration, periodic recalculations of Safe Yield, evaluating the cumulative impacts of transfers and the balance of recharge and discharge, subsidence management, MPI evaluations, estimation of storage changes, other scientific demonstrations required for groundwater management, and many regulatory requirements, such as the demonstration of Hydraulic Control, the triennial recomputation of ambient water quality, and Prado Basin habitat sustainability. The monitoring program includes field work implemented by Watermaster staff and consultants at private wells and monitoring wells, and cooperative programs to collect, compile, and store data from well owners and other entities including municipal water agencies, private water companies, the California Department of Toxic Substance Control (DTSC), the County of San Bernardino, and various private consulting firms. To continue to comply with regulations and meet Watermaster's obligations under its agreements, Court orders, and CEQA, it is anticipated that new monitoring wells will need to be constructed. Many of the new monitoring wells will be needed to replace private wells that are currently used for monitoring, but will be destroyed as agricultural lands are converted to urban land uses. Other new monitoring wells will be needed to support regulatory compliance or other Watermaster management initiatives.

Under the OBMPU, up to 100 new monitoring wells will be constructed to monitor groundwater levels in the Chino Basin with total depths ranging from 50 to 1,500 feet and four- to six-inches in diameter. The average area of disturbance of each well site is anticipated estimated to be half an acre or less. Additionally, the ongoing groundwater-level monitoring program will continue. (See Exhibit 6).

Groundwater-quality monitoring. Watermaster's groundwater-quality monitoring program supports many Watermaster management and regulatory-compliance functions including: compliance with the maximum benefit SNMP (refer to P. 34 for a detailed discussion), characterization of non-point source contamination and plumes associated with point-source discharges, support for ground-water modeling, characterization of groundwater/surface-water interactions in the Prado Basin area, and characterization of basin-wide trends in groundwater quality as part of the Watermaster's biennial State of the Basin report. The monitoring program includes sampling and analysis programs implemented by Watermaster staff at private wells and monitoring wells, and cooperative programs to collect, compile, and store data from well owners and other entities that conduct groundwater-quality monitoring programs. To continue to comply with regulations and meet Watermaster's obligations under its agreements, Court orders, and CEQA, it is anticipated that new monitoring wells will need to be constructed. Many of the new monitoring wells will be needed to replace private wells that are currently used for monitoring but will be destroyed as agricultural lands are converted to urban land uses. Other new monitoring wells will be needed to support regulatory compliance or other Watermaster management initiatives.

Under the OBMPU, up to 100 new monitoring wells (this is a total of 100 monitoring wells for all monitoring purposes) will be constructed to monitor groundwater quality in the Chino Basin with total depths ranging from 50 to 1,500 feet and four- to six-inches in diameter. The average area of disturbance of each well site is estimated to be half an acre or less. Additionally, the ongoing groundwater-quality monitoring program will continue. Note that monitoring wells can serve multiple purposes by monitoring groundwater levels and providing water quality sampling sites. (See Exhibit 7).

Groundwater-production monitoring. Watermaster uses groundwater-production data to quantify and levy assessments pursuant to the Judgment. Estimates of production are also essential inputs to recalibrate Watermaster's groundwater flow model, which is used to inform the recalculation of Safe Yield, evaluate the state of Hydraulic Control, perform MPI evaluations, and support many other Watermaster initiatives. Members of the Appropriative and Overlying Non-Agricultural Pools and CDA record their own meter data and submit them to Watermaster. For Agricultural Pool wells, Watermaster performs a field program to install totalizing flow meters, repair or replace broken meters, and visit the wells quarterly to record the metered data. Watermaster has determined that for some Agricultural Pool wells it is not practical to repair, replace or install new meters. In these cases, Watermaster applies a water-duty based method to estimate production on an annual basis.

Under the OBMPU, up to 300 in-line flow meters will be installed in agricultural wells to accurately estimate production by the Agricultural Pool. Watermaster's ongoing groundwater-production monitoring program will continue. (See Exhibit 8). This activity is an ongoing management activity being carried out by the Watermaster.

Surface-water and climate monitoring. Watermaster's surface-water and climate monitoring program supports many Watermaster management functions, including: groundwater model development and recalibration, periodic recalculations of Safe Yield, evaluating the cumulative impacts of transfers and the balance of recharge and discharge, evaluating Storage and Recovery Program applications, evaluating MPI, recharge master planning, evaluating Prado Basin habitat sustainability, evaluating compliance with the SWRCB diversion permits, supporting maximum benefit SNMP compliance (refer to P.34), and supporting recycled-water recharge permits compliance. Most of the data are collected from publicly available sources, including POTW discharge data, USGS stream gaging station data, and precipitation and temperature data measured at public weather stations or downloaded from spatially gridded datasets. Chino Basin stormwater, imported water, and recycled water recharge data are collected by the IEUA and shared with Watermaster. Watermaster staff also performs surface-water monitoring of the Santa Ana River to comply with the maximum-benefit SNMP.

Under the OBMPU, flow and stage measuring equipment and meteorological monitoring equipment will be installed in and near stormwater drainage and recharge facilities, respectively, to improve the accuracy of surface-water diversion and recharge measurements. Watermaster and IEUA's ongoing surface-water and climate monitoring efforts will continue. (See Exhibit 9). This activity will typically occur within a 10' x 10' area and most often within existing disturbed areas.

Ground-level monitoring. Watermaster's ground-level monitoring program is conducted pursuant to the *Chino Basin Subsidence Management Plan.* The objective of the plan is to minimize or stop the occurrence of land subsidence and groundwater fissuring within the Chino Basin. The ground-level monitoring program is focused across the western portion of Chino Basin within defined Areas of Subsidence Concern—areas of Chino Basin that are susceptible to land subsidence.

Under the OBMPU, up to three extensometers will be constructed in the areas prone to subsidence with a total depth ranging from 50 to 1,500 feet. The extensometers are installed in conjunction with new or existing wells. Watermaster's ongoing ground-level monitoring program will continue. (See Exhibit 10).

Well construction, abandonment, and destruction. Watermaster maintains a database of all wells in the basin and performs periodic well inspections. Sometimes, Watermaster staff identifies a new well while implementing its monitoring programs. Well owners must obtain permits from appropriate county and state agencies to drill and construct a well and put it into use.

The presence of abandoned wells is a threat to groundwater supply and a physical hazard. Watermaster staff periodically reviews its database, makes appropriate inspections, consults with well owners, maintains a list of abandoned wells in the Chino Basin, and provides this list to the counties for follow-up and enforcement. The owners of the abandoned wells are requested to properly destroy their wells following the ordinances developed by the county in which they are located.

Under the OBMPU, Watermaster will continue these efforts, which will not involve and new or upgraded facilities.

Biological monitoring. Watermaster's biological monitoring program is conducted pursuant to the adaptive monitoring program (AMP) for the Prado Basin Habitat Sustainability Program (PBHSP). The PBHSP was created under a Peace II mitigation measure to monitor potential impacts on Prado Basin habitat from implementing hydraulic control. The objective of the PBHSP is to ensure that the groundwater-dependent ecosystem in Prado Basin will not incur unfore-seeable significant adverse impacts due to implementation of the Peace II Agreement. The monitoring program produces time series data and information on the extent and quality of the riparian habitat in the Prado Basin over a historical period that includes both pre- and post-Peace II implementation. Two types of monitoring and assessment are performed: regional and site-specific. Regional monitoring and assessment of the riparian habitat is performed by mapping the extent and quality of riparian habitat over time using multi-spectral remote-sensing data and air photos. Site-specific monitoring performed in the Prado Basin includes field vegetation surveys and seasonal ground-based photo monitoring.

Under the OBMPU, Watermaster will continue these efforts, which will not involve any new or upgraded facilities. Since the 2000 OBMP PEIR and related CEQA documents have already evaluated the environmental impacts associated with the OBMP and the OBMPU will simply continue this previously analyzed program component, this activity will be treated as part of the baseline against which the OBMPU is evaluated.

Water-supply and water-use monitoring. Watermaster compiles water supply and water-use data from the Parties to support two required reporting efforts: the Watermaster Annual Report to the Court and annual reporting requirements for adjudicated basins pursuant to the Sustainable Groundwater Management Act (SGMA). The data are also used to support calibration of Watermaster's surface-water and groundwater models. Monthly water use volumes for supply sources other than Chino Basin groundwater are collected from the Parties; this includes groundwater from other basins, recycled water, imported water, and native surface water.

Under the OBMPU, Watermaster will continue these efforts, which will not involve any new or upgraded facilities.

Planning information. Watermaster periodically collects and compiles information on the Parties' best estimates of their future demands and associated water-supply plans. The data are used for future planning investigations that require the use of Watermaster's surface-water and groundwater models, such as Safe Yield recalculations and RMP updates.

Under the OBMPU, Watermaster will continue these efforts, which will not involve any new or upgraded facilities.

4.3.2 Program Element 2. Develop and Implement Comprehensive Recharge Program

4.3.2.1 Objectives

The 2000 OBMP included PE 2—*Develop and Implement Comprehensive Recharge Program*—to increase stormwater recharge to offset the recharge lost due to channel lining, to ensure there will be enough supplemental water recharge capacity available to Watermaster to replenish overdraft, and to maximize the recharge of recycled and supplemental waters to protect or enhance Safe Yield. Through the OBMPU process it was determined that the objective of PE 2 remains the same.

4.3.2.2 2000 OBMP Project Description and Implementation Progress

The comprehensive recharge program, as described in the 2000 OBMP PEIR, consisted of three phases, (1) to screen and assess potential recharge sites (completed prior to the development of the 2000 OBMP PEIR), (2) to develop engineering and institutional assessments for the sites that passed the screening assessment, including expected recharge rates, cost, etc., and (3) to develop a recharge master plan (RMP) to design, construct, and manage recharge basins. The plan would incorporate recycled water and imported water recharge.

The specific projects described in the 2000 OBMP PEIR included improvements to the Upland, College Heights, Brooks, Eight and Seventh Street, Etiwanda Conservation, Lower Day, Victoria, San Sevaine, Turner, Hickory, Etiwanda Percolation, Jurupa, and Wineville Basins, and the construction of the RP-3 Basins.

Watermaster completed the RMP in 2001. The 2001 RMP and subsequent Recharge Master Plan Updates (RMPU) (2010, 2013, and 2018) were developed in open and transparent planning processes that were convened by Watermaster through an ad-hoc committee. As part of the *2013 Amendment to the 2010 RMPU* (2013 RMPU), the RMPU Steering Committee, now referred to as the Recharge Investigations and Projects Committee (RIPComm), was created to assist Watermaster and the IEUA in preparing RMPUs. The RIPComm is open to all interested stakeholders and meets regularly to discuss the status of recharge projects under construction and potential new projects for inclusion in future RMPUs. The outcomes of the 2001 Recharge Master Plan and subsequent RMPUs (2010, 2013, and 2018) are summarized below:

- 2001 Recharge Master Plan: Watermaster and the IEUA, constructed the first set of recharge facilities to exercise its rights pursuant to its diversion permits, increasing average annual stormwater recharge by about 9,500 afy. As part of this work, Watermaster and the IEUA modified seventeen existing flood retention and conservation facilities to increase diversion rates, conservation storage, and recharge, and constructed two new recharge facilities. The cost of these recharge improvements was about $60 million. The IEUA and Watermaster paid for about half of this cost, while the other half was funded through Proposition 13 grants and other grant programs.
- 2013 RMPU: As of this writing, Watermaster and the IEUA are completing the final design/construction of five of the recommended 2013 RMPU facilities, and they should be online in 2021. These facilities are expected to increase stormwater recharge by about 4,700 afy with a cumulative increase to 14,200 afy.
- 2018 RMPU: The 2018 RMPU did not recommend any new recharge projects. One of the findings of the 2018 RMPU was that Watermaster, based on the best available planning information at that time, had enough supplemental water recharge capacity to it meet its Replenishment Obligations via wet-water recharge through 2050.

Upon completion of the 2013 RMPU facilities, the annual average stormwater recharge performed pursuant to its diversion permits is expected to be about 15,000 afy.[8] Thus, in the first 20 years of OBMP implementation, average annual stormwater recharge will have increased by about 14,200 afy, and supplemental water recharge capacity will have increased by 27,600 afy. And, the IEUA has increased the recharge of recycled water from about 500 afy in 2000 to about 13,000 afy in 2018. The next RMPU must be completed and submitted to the Court by October 2023. Exhibit 11 shows the recharge basins improvements by recharge master plan effort.

There are four managed recharge mechanisms in the Chino Basin:

Recharge basins. Imported water, stormwater, dry-weather flow, and recycled water are recharged at 17 recharge basins. Watermaster has permits from the State Water Resources Control Board (SWRCB) (which are held in trust for Watermaster parties). This allows the parties to divert stormwater and dry-weather flow to the recharge basins for recharge, store it in the Chino Basin, and subsequently recover it for beneficial use.

Aquifer Storage and Recovery (ASR) wells. ASR wells are used to inject treated imported water into the Basin and to pump groundwater. The MVWD owns and operates four ASR wells in the Chino Basin.

[8] WEI (2018). Recharge Master Plan Update. September 2018.
http://www.cbwm.org/docs/engdocs/2018%20RMPU/20180914_2018_RMPU_final.pdf

In-lieu recharge. In-lieu recharge can occur when a Chino Basin Party with pumping rights in the Chino Basin elects to use supplemental water directly in lieu of pumping some or all its rights in the Chino Basin for the specific purpose of recharging supplemental water.

MS4 facilities. The 2013 RMPU implementation included a process to create and update a database of all known runoff management projects implemented through the Municipal Separate Storm Sewer System (MS4) permits in the Chino Basin. This was done to create the data necessary to evaluate the significance of new stormwater recharge created by MS4 projects. As of FY 2016/2017, a total of 114 MS4 projects were identified as complying with the MS4 permit through infiltration features. These 114 projects have an aggregate drainage area of 1,733 acres.

Table 3 below describes the existing recharge capacity in the Chino Basin by source water and recharge mechanism. [9]

Table 3
ESTIMATED RECHARGE CAPACITIES IN THE CHINO BASIN

Source Water	Recharge Mechanism	2018 Conditions	2018 Conditions Plus Current Recommended 2013 RMPU Projects	2018 Conditions Plus Current Recommended 2013 RMPU Projects and Restoration of WFA Capacity [10]
Stormwater	Average Stormwater Recharge in Spreading Basins	10,150	14,950	14,950
	Average Expected Recharge of MS4 Projects	380	380	380
	Subtotal	10,530	15,330	15,330
Supplemental Water	Spreading Capacity for Supplemental Water	56,600	56,600	56,600
	ASR Injection Capacity	5,480	5,480	5,480
	In-Lieu Recharge Capacity	17,700	17,700	40,900
	Subtotal	79,780	79,780	102,980
Total		90,310	95,110	118,310

[9] WEI (2018). Recharge Master Plan Update. September 2018. http://www.cbwm.org/docs/engdocs/2018%20RMPU/20180914_2018_RMPU_final.pdf
[10] The Water Facilities Authority (WFA) Agua de Lejos Treatment Plant (WFA plant) treats imported water purchased from the IEUA at the WFA plant and delivers it to the cities of Chino, Chino Hills, Ontario, and Upland, and to the MVWD. Each of these WFA member agencies has a contracted share of the plant's total capacity of 81 million gallons per day (mgd) (90,700 afy). The WFA plant's current capacity is less than its rated capacity of 81 mgd (90,700 afy) due to solids handling limitations. According to WFA, the current capacity of the WFA plant is about 40 mgd in the summer months and about 20 mgd in the winter months. Based on the estimated recharge capacities developed in the 2018 Recharge Master Plan, restoring the WFA plant to its rated capacity would increase in-lieu recharge capacity in the Chino Basin by about 23,000 afy.

4.3.2.3 OBMPU Project Description

Exhibit 4 shows the implementation actions for PE 2 under the OBMPU, which include continuing to convene RIPComm, complete the 2023 RMPU and update it no less than every five years thereafter, and implementing recharge projects based on need and available resources. The RMPU process is an ongoing requirement of the Peace Agreement, the Peace II Agreement, and the December 2007 Court Order that approved the Peace II Agreement. The next RMPU is due to the Court by October 2023 and must be updated no less frequently than every five years thereafter.

Through the OBMPU stakeholder process, the Parties expressed interest in maximizing the recharge of recycled, imported, and stormwaters where feasible. Although meeting these objectives is not a requirement for the RMPU, the next (or a future) RMP process could accomplish this by considering projects that will meet other needs of the Parties, such as providing additional recharge capacity for Storage and Recovery Programs and addressing pumping sustainability and land subsidence challenges. There are opportunities and challenges for increasing these efforts in the future:

- The theoretical average annual stormwater discharge available for diversion under the existing water rights permits is about 74,000 afy (ranging from 21,400 to 110,500 afy for the combined permitted diversions) and the annual average stormwater recharge performed pursuant to these permits is expected to be about 14,950 afy. The difference between these two values, about 60,000 afy, is a lost opportunity for stormwater recharge. Improvements to existing facilities and operations and/or new facilities are required to achieve the stormwater recharge potential.
- Using criteria developed by the Watermaster parties, Watermaster and IEUA shall select projects that are implemented only if the melded unit cost of stormwater recharge resulting from the projects is less than the avoided unit cost of purchasing imported water from the Metropolitan Water District of Southern California [MWD or Metropolitan]). No new recharge projects were recommended for implementation in the 2018 RMPU. New evaluation criteria that includes both cost and reliability of the new recharge will be required to increase stormwater recharge.
- The criteria on how and where to conduct recharge needs to be reviewed and updated if it can be demonstrated that recharge can be used to effectively address existing basin management challenges that include land subsidence, maintaining Hydraulic Control, and pumping sustainability. Historically, Watermaster has attempted to manage the recharge of stormwater and supplemental water to promote the balance of recharge and discharge to, in part, address these challenges. Additional investigation needs to be done to determine if recharge improvements can be made to better address these basin management challenges. New evaluation and selection criteria will to be developed that consider both cost and reliability to increase the stormwater available for recharge.
- New recharge facilities and/or improvements to existing facilities will be needed if Parties or others want to increase supplemental water recharge capacity for Storage and Recovery Programs.
- Recharge of recycled and imported water via recharge basins is limited by competing uses for recharge basins for storm, imported and recycled water recharge and by seasonal storage – recycled and imported water supplies in excess of demands tend to be available in the winter, at the same time the recharge basins are being used for stormwater recharge. Thus, groundwater recharge facilities that increase recycled and imported water recharge and storage capacity, specifically during the wintertime should be evaluated.

The new recharge facilities and/or improvements to existing facilities that may result from the 2023 RMPU process as envisioned under the OBMPU are listed below and shown on Exhibit 12.

- Constructing and operating a new surface water storage basin for stormwater and supplemental waters at the Chino Institute for Men (CIM), facilities to divert stormwater from Chino Creek to the new storage basin, facilities to convey stormwater and dry-weather flow from the new storage basin to recharge facilities in the northern part of the basin, and facilities to convey supplemental waters to the storage basin.
  - The new storage basin at the CIM would have an area between 50 and 100 acres.
- Constructing flood (Managed Aquifer Recharge (MAR) facilities in the northeast part of basin to recharge supplemental water. This assumes that land in existing agricultural uses can be flooded to achieve managed aquifer recharge. The potential cumulative area of these facilities is about 200 acres, the total agricultural land use area in the northern part of the Chino Basin.
- Constructing and operating a new surface water storage basin at the existing Lower Cucamonga Ponds, facilities to divert stormwater and dry-weather flow from Cucamonga Creek to the new storage basin and facilities to convey stormwater from the new storage basin to recharge facilities in the northern part of the basin.
  - The Lower Cucamonga Ponds are an existing detention basin owned by the San Bernardino County Flood Control District. The ponds would be converted into one large conservation facility to store stormwater. It would have an area of about 50 acres.
- Constructing and operating a new surface water storage basin at the existing Mills Wetlands, facilities to divert stormwater and dry-weather flow from Cucamonga Creek to the new storage basin and facilities to convey stormwater from the new storage basin to recharge facilities in the northern part of the basin.
  - The Mills Wetlands are existing artificial wetlands used to treat water from the Cucamonga Creek. The wetlands would be converted into a conservation facility to store stormwater with an area of about 30 acres.
- Constructing and operating a new surface water storage basin at the existing Riverside Basin, facilities to divert stormwater and dry-weather flow from Day Creek to the new storage basin and facilities to convey stormwater from the new reservoir to recharge facilities in the northern part of the basin.
  - The Riverside Basin is an existing detention basin owned by the San Bernardino County Flood Control District. The basin would be converted into a conservation facility to store stormwater with an area of about 60 acres.
- Constructing and operating a new surface water storage basin for stormwater and supplemental waters at the existing Vulcan Basin, facilities to divert stormwater and dry-weather flow from the West Fontana Channel and surrounding urban areas to the new storage basin, facilities to convey stormwater from the new reservoir to recharge facilities in the northern part of the basin, and facilities to convey supplemental waters to the storage basin.
  - The Vulcan Basin is an existing facility formerly used as a sand and gravel mine. The basin would be converted into a conservation facility to store stormwater and has an area of about 60 acres.
- Constructing improvements at the Jurupa Basin that include grading improvements to enable the diversion and storage of storm and supplemental waters, removing fine-grained material from the Jurupa Basin to improve its infiltration rate and increase recharge capacity and improvements at the Jurupa pump station to increase the time the pump station can operate at full capacity. The amount of area that may be impacted has not yet been defined.
- Constructing and operating a new surface water storage basin at the confluence of San Antonio and Chino Creeks (proposed Confluence Project), facilities to divert stormwater

and dry-weather flow from of San Antonio and Chino Creeks to the new storage basin and facilities to convey stormwater from the new reservoir to recharge facilities in the northern part of the basin.

    - The Confluence Project would have an area of about 10 acres and a depth of about 35 feet
    - This would result in about 200,000 cubic yards of material removal, with the goal of balancing the cut and fill to minimize material export.

- Constructing improvements to the Water Facilities Authority (WFA) plant to remove some or all its solids handling limitations and other improvements to increase its capacity to its original design capacity and thereby increase in-lieu recharge capacity.
- Collaborating with the MS4 permittees to ensure MS4-compliance projects prioritize recharge. This would result in the construction of new MS4-compliance facilities that increase recharge in the Chino Basin. No estimate of potential area impacts is available.
- Constructing up to 60 ASR wells to increase supplemental water recharge capacity by up to 70,000 afy. In the case that recycled water is injected into the basin, a subset of these wells would also be injection wells.
    - Depth of new ASR wells could range between 500 and 1,500 feet.
    - The average area of disturbance of each well site is estimated to be half an acre or less.
    - Constructing conveyance facilities to convey the supplemental water to the ASR wells and to convey produced water to end users.
    - Constructing improvements to wastewater treatment plants if recycled water is injected (described in Section 4.3.5).
    - The expected location of ASR wells is north of Highway 60 in MZ-1, MZ-2 and MZ-3.

As shown in Exhibit 5, some of these facilities help achieve the objectives of PE 4 by creating additional recharge capacity in MZ-1 that could be used to increase piezometric levels in that area (see Section 4.3.4). The additional recharge capacity created from these facilities can also help achieve the objectives of PE 5 and PEs 8/9, because these facilities can be used to recharge supplemental water to improve water supply reliability and/or implement a Storage and Recovery Program. Finally, these facilities will help address pumping sustainability issues in the JCSD, FWC, and Chino-II Desalter wellfield areas.

4.3.3 Program Element 3. Develop and Implement a Water Supply Plan for Impaired Areas

4.3.3.1 Objectives

The 2000 OBMP included PE 3—*Develop and Implement a Water Supply Plan for Impaired Areas*—to maintain and enhance Safe Yield and maximize beneficial uses of groundwater. The OBMP recognized that urban land uses would ultimately replace agricultural land uses, which had been the primary land use in the southern portion of the basin throughout the 20th century, and that if municipal pumping did not replace agricultural pumping, groundwater levels would rise and discharge to the Santa Ana River. The potential consequences would be the loss of Safe Yield and the outflow of high-TDS and high-nitrate groundwater from the Chino Basin to the Santa Ana River—the latter of which could impair downstream beneficial uses in Orange County.

The OBMP estimated that to maintain the Safe Yield, approximately 40,000 afy of groundwater would need to be produced to replace Agricultural Pool pumping in the southern part of the basin. The Chino Basin Desalters were identified as the optimal multi-benefit project to replace the expected decrease in agricultural production to maintain or enhance Safe Yield, to pump and treat high-salinity groundwater in support of PE 7, to meet growing municipal demands in support of PE 5, and to protect the beneficial uses of the Santa Ana River. Additionally, PE 6 envisioned that the Chino Basin Desalters could also be used to clean up the volatile organic compound (VOC) plumes that would eventually be intercepted by the Desalter wells. Through the OBMPU process it was determined that the objective of PE 3 remains the same.

4.3.3.2 2000 OBMP Project Description and Implementation Progress

The water-supply plan for impaired areas, as described in the 2000 OBMP PEIR, consisted of two options: a reverse osmosis (RO) only alternative and a RO/ion exchange (IX) alternative. Both alternatives involved the construction of two RO regional desalter facilities with their associated wellfields, expansion of the Chino Desalter Number 1, and construction of water transmission pipelines, brine disposal pipelines and pump stations. The RO/IX alternative would also include an IX treatment train. The wellfields would be located north of the Santa Ana River along the southern portion of the Chino Basin to help maintain Safe Yield by reducing losses to the river. The locations of the groundwater treatment plant would be based on the location of the proposed well fields, proposed product water delivery points and access to the Inland Empire Brine Line for brine disposal. Facility capacities for both RO and RO/IX were based on the assumption that approximately 40,000 afy of poor-quality groundwater would need to be pumped in the southern portion of the Chino Basin in order to maintain Safe Yield value and to prevent approximately 40,000 afy of poor-quality groundwater from discharging into the Santa Ana River. Both facilities would require the installation of approximately 32,000 feet of pipeline ranging in size from 10 to 20 inches in diameter and two pump stations of 200 to 250 Horsepower (HP).

As of January 2020, there are 31 Chino Desalter wells with the capacity to pump about 34 mgd (37,600 afy) of brackish groundwater from the southern portion of the Chino Basin, though not all wells are currently in operation. Pumped groundwater is conveyed to the Chino-I and Chino-II Desalters that treat the groundwater with RO, IX and air strippers. The treated water is then conveyed to the CDA's member agencies. The brine created in the treatment process is discharged to the Inland Empire Brine Line. Over the last five years, total desalter production has ranged from about 28,100 to 30,000 afy, averaging 29,200 afy. The following describes the history of the expansion of the Chino Basin Desalters:

- The Chino-I Desalter, which included 11 production wells, began operating in 2000 with a design capacity of 8 million gallons per day (mgd; about 9,000 afy).
- In 2005, the Chino-I Desalter capacity was expanded to 14 mgd (about 16,000 afy) with the construction of three additional wells.
- The Chino-II Desalter, which included eight production wells, began operating in June 2006 with a design capacity of 15 mgd (about 17,000 afy).
- In 2012, the CDA completed construction of the Chino Creek Well Field (CCWF) in the western portion of the basin which added five wells and additional capacity of about 1.3 mgd (1,500 afy) to the Chino-I Desalter; four of these wells began pumping between 2014 and 2016.
- In 2015, two additional Chino-II Desalter wells were constructed, and pumping began in 2018. These two wells, plus one additional well that is planned for construction, are part of the final expansion of the Chino Basin Desalters to meet the 40,000 afy pumping requirement of the OBMP, Peace Agreements, and maximum benefit SNMP (refer to P.34). This final expansion is expected to be completed by 2021.

The construction and operation of the Chino Basin Desalters became a fundamental component of the Chino Basin maximum benefit SNMP developed pursuant to PE 7. Watermaster and the IEUA are jointly responsible for the implementation of the maximum benefit SNMP, which enables the recycled-water reuse and recharge programs in the Chino Basin in support of PEs 2 and 5. The SNMP (refer to P. 34) includes nine "maximum benefit commitments." One commitment is the achievement and attainment of Hydraulic Control to limit groundwater outflow from the Chino-North Groundwater Management Zone (GMZ) to *de minimis* levels to protect downstream beneficial uses. Hydraulic Control is also necessary to maximize the Safe Yield. The operation of the Chino Basin Desalters is necessary to attain Hydraulic Control. Three of the nine maximum benefit commitments are related to the design and construction of the Chino Basin Desalters.

Through the OBMPU process it was determined that no new or upgraded facilities beyond those previously envisioned to achieve PE 3 would be implemented.

4.3.4 Program Element 4. Develop and Implement Comprehensive Groundwater Management Plan for Management Zone 1

4.3.4.1 Objectives

The 2000 OBMP included PE 4—*Develop and Implement Comprehensive Groundwater Management Plan for Management Zone 1*—to characterize land subsidence spatially and temporarily, identify its causes, and, where appropriate, develop and implement a program to manage it. Through the OBMPU process, the objective of PE 4 was refined to: reduce or stop the occurrence of land subsidence and ground fissuring in the Chino Basin or reduce it to tolerable levels. PE 4 achieves this objective by implementing the Watermaster's Subsidence Management Plan and adapting the plan as warranted by data, analyses, and interpretations.

4.3.4.2 2000 OBMP Project Description and Implementation Progress

The comprehensive groundwater management plan for MZ-1, as described in the 2000 OBMP PEIR, called for the development and implementation of an interim management plan for MZ-1 that would:

- Minimize subsidence and fissuring in the short-term.
- Collect information necessary to understand the extent, rate, and mechanisms of subsidence and fissuring.
- Formulate a management plan to reduce to tolerable levels or abate future subsidence and fissuring.

The interim management plan for MZ-1 included: (1) a voluntary reduction of production in the deep aquifer system in southern MZ-1 for a 5-year period to evaluate its impacts on subsidence, (2) an effort to balance the recharge and discharge in MZ-1, in part, through the physical recharge of 6,500 afy of Supplemental Water in MZ-1, and (3) an aquifer-system and land-subsidence investigation in the southwestern region of MZ-1 to support the development of a long-term management plan for MZ-1 (second and third bullets above). The investigation was titled the *MZ-1 Interim Monitoring Program* (IMP). [11]

From 2001 to 2005, Watermaster developed and conducted the IMP under the guidance of the MZ-1 Technical Committee, which consisted of the MZ-1 Parties and their technical consultants. The implementation of the IMP provided enough information for Watermaster to develop "Guidance Criteria" for the MZ-1 Parties that, if followed, would minimize the potential for subsidence and fissuring in the investigation area (Managed Area). The methods, results, and conclusions of the IMP, including the Guidance Criteria, were described in detail in the *MZ-1*

[11] Chino Basin Watermaster. (2003). *Optimum Basin Management Program, Management Zone 1 Interim Monitoring Program*. Prepared by Wildermuth Environmental, Inc. January 8, 2003.

Summary Report.[12] The Guidance Criteria formed the basis for the long-term management plan, documented as the *MZ-1 Subsidence Management Plan* (MZ-1 Plan).[13] To minimize the potential for future subsidence and fissuring in the Managed Area, the MZ-1 Plan recommended that the MZ-1 Parties manage their groundwater pumping pursuant to the Guidance Criteria. Implementation of the MZ-1 Plan began in 2008. The MZ-1 Plan called for the continuation of monitoring, data analysis, annual reporting, and adjustments to the MZ-1 Plan, as warranted by the data. Additionally, the MZ-1 Plan expanded monitoring of the aquifer-system and land subsidence into other areas of the Chino Basin where the IMP indicated concerns for future subsidence and ground fissuring. These so-called "Areas of Subsidence Concern" are: Central MZ-1, Northwest MZ-1, Northeast Area, and Southeast Area (see Exhibit 10).

The MZ-1 Plan stated that if data from existing monitoring efforts in the Areas of Subsidence Concern indicate the potential for adverse impacts due to subsidence, Watermaster would revise the plan to avoid those adverse impacts. This resulted in the development of the *2015 Chino Basin Subsidence Management Plan* (Subsidence Management Plan)[14] and a recommendation to develop a subsidence management plan for Northwest MZ-1. Land subsidence in Northwest MZ-1 was first identified as a concern in 2006 in the MZ-1 Summary Report and again in 2007 in the MZ-1 Plan. Since then, Watermaster has been monitoring vertical ground motion in this area via InSAR and groundwater levels with pressure transducers at selected wells. Of concern is that subsidence across the San Jose Fault in Northwest MZ-1 has occurred in a pattern of concentrated differential subsidence—the same pattern of differential subsidence that occurred in the Managed Area during the time of ground fissuring. Ground fissuring is the main subsidence-related threat to infrastructure. Because of the threat for ground fissuring, Watermaster increased monitoring efforts in Northwest MZ-1 beginning in FY 2012/13 to include ground elevation surveys and EDMs to monitor ground motion and the potential for fissuring.

In 2015, the GLMC developed the *Work Plan to Develop a Subsidence Management Plan for the Northwest MZ-1 Area* (Work Plan).[15] The Work Plan is an ongoing Watermaster effort and includes a description of a multi-year scope-of-work, a cost estimate, and an implementation schedule. The Work Plan was included in the Subsidence Management Plan as Appendix B. Implementation of the Work Plan began in 2015.

Pursuant to the Subsidence Management Plan, each year, Watermaster has produced the *Annual Report of the Ground-Level Monitoring Committee (GLMC)* that contains the results of ongoing monitoring efforts, interpretations of the data, and recommended adjustments to the Subsidence Management Plan, if any. The annual report includes recommendations for Watermaster's

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[12] Chino Basin Watermaster. (2006). *Optimum Basin Management Program, Management Zone 1 Interim Monitoring Program, MZ-1 Summary Report*. Prepared by Wildermuth Environmental, Inc. February, 2006. http://www.cbwm.org/docs/engdocs/Land%20Subsidence/20071017_MZ1_Plan%20--%20Appendix_A_MZ1_SummaryReport_20060226.pdf

[13] Chino Basin Watermaster. (2007). *Chino Basin Optimum Basin Management Program, Management Zone 1 Subsidence Management Plan*. October, 2007. http://www.cbwm.org/docs/engdocs/Land%20Subsidence/20071017_MZ1_Plan.pdf

[14] Chino Basin Watermaster. (2015). *Chino Basin Subsidence Management Plan.* July 23, 2015. http://www.cbwm.org/docs/engdocs/Land%20Subsidence/20150724%20-%20Chino%20Basin%20Subsidence%20Management%20Plan%202015/FINAL_2015_CBSMP.pdf

[15] Chino Basin Watermaster. (2015). *Work Plan, Develop a Subsidence-Management Plan for the Northwest MZ-1 Area.* July 23, 2015. http://www.cbwm.org/docs/engdocs/Land%20Subsidence/20150724%20-%20Chino%20Basin%20Subsidence%20Management%20Plan%202015/FINAL_CBSMP_Appendix_B.pdf

ground-level monitoring program for the subsequent fiscal year. The Watermaster publishes the annual reports on its website. The most recent annual report was finalized in October 2019.

Although Watermaster was not specifically described in the 2000 OBMP PEIR, Watermaster has exercised best efforts to arrange for the physical recharge of 6,500 afy of Supplemental Water at the MZ-1 spreading facilities. Although not a party to the Peace II Agreement, Watermaster committed to continue the physical recharge of at least 6,500 afy of Supplemental Water as an annual average through the term of the Peace Agreement (2030).

4.3.4.3 OBMPU Project Description

Exhibit 4 shows the implementation actions for PE 4 under the OBMPU, which include continuing to implement Watermaster's Subsidence Management Plan, and adapt it as necessary, and continuing the physical recharge of at least 6,500 afy of Supplemental Water as an annual average through the term of the Peace Agreement.

The Chino Basin will always be susceptible to the future occurrence of land subsidence and ground fissuring, so Watermaster will continue to implement the Subsidence Management Plan pursuant to PE 4, which includes:

- Conducting the ground-level monitoring program pursuant to the Subsidence Management Plan and the recommendations of the GLMC. The monitoring program includes the monitoring of groundwater pumping, recharge, groundwater levels, aquifer-system deformation, and vertical and horizontal ground motion across the western portion of the Chino Basin. The then-current description of the ground-level monitoring program is always included in each Annual Report of the GLMC [third bullet below]).
- Convening the GLMC annually to review and interpret the data from the ground-level monitoring program.
- Preparing annual reports of the GLMC that include recommendations for changes to the monitoring program. The annual report describes recommended activities for the monitoring program for the future fiscal year(s) in the form of a proposed scope-of-work, schedule, and budget. The recommended scope-of-work, schedule, and budget is run through Watermaster's budgeting process for revisions (if needed) and approval. The final scope-of-work, schedule, and budget for the upcoming fiscal year is included in the final annual report.

A key element of the Subsidence Management Plan is the verification of its protective nature against land subsidence and ground fissuring in the Chino Basin. This verification is accomplished through continued monitoring, testing, and reporting by the GLMC, and revision of the Subsidence Management Plan when appropriate. In this sense, the Subsidence Management Plan is adaptive. The GLMC will make these recommendations within its annual reports and prepare a draft revised Subsidence Management Plan that will be run through the Watermaster process for revisions and/or approval. Upon Watermaster Board approval, the revised Subsidence Management Plan will be submitted to the Court.

A potential recommendation of the Subsidence Management Plan for Northwest MZ-1 is conducting wet-water and/or in-lieu recharge methods that will result in a net increase in recharge. Interim work performed in Northwest MZ-1 to support the development of a subsidence management plan for this area[16] suggests that land subsidence could be reduced or abated if

[16] Chino Basin Watermaster. 2017. *Task 3 and Task 4 of the Work Plan to Develop a Subsidence Management Plan for the Northwest MZ-1 Area: Development and Evaluation of Baseline and Initial Subsidence-Management Alternatives*.

recharge in Northwest MZ-1 is increased by at least 20,000 afy, pumping is decreased by at least 20,000 afy, or some combination of both totaling about 20,000 afy. Exhibit 13 is a time-series chart of groundwater pumping, wet-water recharge, and land subsidence (represented as negative vertical ground motion) in Northwest MZ-1 from 1978-2019. Recent pumping in Northwest MZ-1 has decreased significantly: 2017-2019 pumping averaged about 12,000 afy compared to about 19,000 afy since the implementation of the OBMP (2001-2016), a reduction of about 7,000 afy. The reduced pumping is mainly due to water quality issues. Additionally, recent wet-water recharge in Northwest MZ-1 has increased: 2017-2019 recharge averaged about 15,000 afy compared to about 9,000 afy since the implementation of the OBMP (2001-2016), an increase of about 6,000 afy. Exhibit 13 shows that these recent decreases in pumping and increases in recharge, totaling about 13,000 afy, appear to coincide with reduced rates of land subsidence in Northwest MZ-1. This suggests that reduced pumping and/or increased recharge can abate land subsidence in Northwest MZ-1. If the Subsidence Management Plan for Northwest MZ-1 recommends a combination of reduced pumping and wet-water recharge to abate ongoing land subsidence, the pumpers in this area who elect to reduce pumping in accordance with the plan may have difficulty in fully utilizing their water rights with existing infrastructure.

Under the OBMPU, facilities may be needed to: (1) relocate pumping from Northwest MZ-1 to MZ-2 and/or MZ-3, (2) replace some of their pumping with surface or recycled water as a form of in-lieu recharge, (3) facilitate increased wet-water recharge, or (4) a combination of some or all of the above. The operation of these facilities would result in increased groundwater levels that would impact the state of Hydraulic Control; thus, facilities and operations would be needed to ensure that Hydraulic Control is maintained.

The facilities and/or improvements to existing facilities envisioned under the OBMPU to address land subsidence are listed below and are shown on Exhibit 14.

- Constructing up to 10 wells in MZ-2 and MZ-3 to relocate up to 25,000 afy of pumping from MZ-1 to MZ-2 and/or MZ3.
  - Depth of a new well could range between 500 and 1,000 feet.
  - The average area of disturbance of a well site is anticipated to be half an acre or less.
- Constructing improvements to the WFA Agua de Lejos treatment plant to increase its capacity by up to 25,000 afy and the increase in use of imported water purchased from Metropolitan Water District of Southern California by up to 25,000 afy. Some of the surface water supplied could be obtained through TVMWD and its Miramar treatment plant.[17]
- Constructing up to 15 ASR wells in Northwest MZ-1 and Central MZ-1 to increase wet-water recharge capacity in MZ-1 by up to 25,000 afy. This would require improvements to the WFA Agua de Lejos treatment plant to increase its capacity by up to 25,000 afy and the increase in use of imported water purchased from Metropolitan Water District of Southern California by up to 25,000 afy. Some of the surface water supplied could be obtained through TVMWD and its Miramar treatment plant. [18]
  - Depth of a new ASR wells could range between 500 and 1,500 feet.
  - The average area of disturbance of a well site is anticipated to be half an acre or less.
  - Constructing conveyance facilities to convey the supplemental water to the ASR wells and to convey produced water to end users.
  - Constructing improvements to wastewater treatment plants if recycled water is injected into ASR wells (described in Section 4.3.5.2).

[17] Note that this project is also discussed under PE 2.
[18] Some of the new ASR wells that will be constructed for PE 2 can be used for PE 4.

    - o The expected location of ASR wells is north of Highway 60 in MZ-1.
- Implementing a combination of the facilities and operating concepts to achieve an overall net increase in recharge of 25,000 afy.
- Expanding the existing Chino Desalter capacity by up to 2,000 afy by adding new wells in the Chino Creek wellfield area and expanding the Chino-I and/or Chino-II treatment capacity (see facilities in Section 4.3.7.2).

As shown in Exhibit 5, some of these facilities help achieve the objectives of PE 8/9, because these facilities that provide additional recharge capacity in MZ-1 and pumping capacity in MZ-2/3 can be used to implement Storage and Recovery programs.

4.3.5 Program Element 5. Develop and Implement Regional Supplemental Water Program

<u>4.3.5.1 Objectives</u>

The 2000 OBMP included PE 5—*Develop and Implement Regional Supplemental Water Program*—to improve regional conveyance and the availability of imported and recycled waters throughout the basin. Through the OBMPU process it was determined that the objective of PE 5 remains the same.

<u>4.3.5.2 2000 OBMP Project Description and Implementation Progress</u>

The regional supplemental water program, as described in the 2000 OBMP PEIR, consisted of expanding the IEUA's recycled water distribution system for recycled water reuse and importing potable water from the Bunker Hill Basin for direct use through the expansion of the Baseline Feeder.[19]

Watermaster and the IEUA have aggressively pursued programs to improve water supply reliability through the implementation of PEs 2, 3, and 5. Since 2000, the IEUA has constructed and operated a recycled water conveyance system throughout the basin, enabling it to provide recycled water to its member agencies for direct reuse and indirect potable reuse. The IEUA owns and operates four wastewater treatment facilities: Regional Plant No. 1 (RP-1), Regional Plant No. 4 (RP-4), Regional Plant No. 5 (RP-5), and the Carbon Canyon Water Reclamation Facility (CCWRF). Recycled water produced by these plants is used for direct reuse, groundwater recharge (indirect potable reuse), and discharged to Chino Creek or Cucamonga Creek, which are tributaries to the Santa Ana River. Historically, the IEUA's operating plan has prioritized the use of recycled water as follows: (1) to meet the IEUA's discharge obligation to the Santa Ana River (17,000 afy), (2) to meet direct reuse demands for recycled water, and (3) to recharge the remaining recycled water. Exhibit 15 shows the location of the IEUA's treatment plants, discharge points to surface water, recharge facilities receiving recycled water, and recycled water distribution pipelines for direct use deliveries.

Although recycled water had been reused since the 1970s, the growth of the IEUA's recycled water reuse programs started in 1997, and in 2005 the OBMP enabled the IEUA's recycled water reuse program to be aggressively expanded. When the OBMP was completed in 2000, the IEUA was recharging about 500 afy of recycled water and utilizing about 3,200 afy for non-potable direct uses. The incorporation of Watermaster and the IEUA's maximum benefit SNMP (refer to P.34) into the Basin Plan in 2004 triggered the ability to rapidly increase recycled water reuse. Over the last five years, the annual direct reuse of recycled water ranged from 17,000 afy to 24,600 afy

[19] Note that the Baseline Feeder was not specifically identified as an implementation action in the 2000 OBMP Implementation Plan and has not been implemented.

and averaged 20,600 afy. And, the annual recycled water recharge ranged from 10,800 to 13,900 afy and averaged 13,000 afy.

The recycled water provided by the IEUA has replaced a like amount of groundwater and imported water that would have otherwise been used for non-potable purposes. Much of the post-2000 increase in supplemental water storage in the Chino Basin is attributable to the increased availability and recharge of recycled water.

4.3.5.3 OBMPU Project Description

Recycled Water Reuse
Exhibit 4 shows the implementation actions for PE 5 under the OBMPU, which include maximizing recycled water reuse and establishing or expanding future recycled water planning efforts to maximize the reuse of all available sources of recycled water.

The IEUA is continuing to expand its recycled-water distribution system and recharge facilities throughout the Chino Basin for direct non-potable reuses and recharge. Growth is still occurring in the Chino Basin and will result in additional wastewater flows to the IEUA's treatment plants and an increase in recycled water production. The new recycled water will be used to meet part of the demand created by urban growth.

The facilities and/or improvements to existing facilities to maximize recycled water reuse envisioned under the OBMPU are listed below and shown on Exhibit 16.

- Constructing an advanced water treatment plant.[20] The area expected to be disturbed by the construction and operation of the plant is 10-20 acres. The location of the treatment plant is currently unknown and it could be collocated at an existing IEUA Water Reclamation Plant (WRP). This facility was previously evaluated in the 2017 FMP PEIR and data will be brought forward into this document.
- Expanding the recycled water distribution systems for indirect potable reuse by constructing up to 100,000 lineal feet (LF) of pipelines of various diameters in the shaded regions shown on Exhibit 16.
- Conducting direct potable reuse (DPR) that will require the construction of the advance water treatment plant described in the first bullet and conveyance facilities to move the product water to the potable system, preferably using existing potable water line(s) within the general area.
- Acquiring surplus recycled water supplies from other entities and constructing conveyance facilities to distribute the water to the Chino Basin. IEUA has evaluated one specific program for transfer of recycled water from Pomona to the Montclair Basins area.

As shown in Exhibit 5, some of these facilities help achieve the objectives of PE 7 by removing salts from the basin through advanced treatment of recycled water.

Water Reliability
Exhibit 4 shows the implementation actions for PE 5 under the OBMPU, which include maximizing recycled water reuse and establishing or expanding future integrated water resources planning efforts to address water supply reliability for all Watermaster Parties.

[20] Advanced water treatment refers to the following waste water treatment processes: RO, membrane filtration, or functionally equivalent processes, and potentially ultraviolet (UV) disinfection.

As described above (see Table 1), the total water demand of the Chino Basin Parties is projected to grow from about 290,000 afy in 2015 to about 420,000 afy by 2040, an increase of about 130,000 afy. The projected growth in water demand by the Appropriative Pool Parties drives the increase in aggregate water demand as some Appropriative Pool Parties are projected to serve new urban water demands created by the conversion of agricultural and vacant land uses to urban uses. A similar challenge was observed during the development of PEs 3 and 5 in the 2000 OBMP. Each of the water sources available to the Chino Basin Parties listed has its limitations:

- The ability to produce groundwater from the Chino Basin is limited by current basin management challenges, such as ongoing land subsidence in MZ-1 and parts of MZ-2, pumping sustainability issues in the JCSD and CDA well field areas, and water quality.
- The challenges to the use of imported water include the reliability of the individual imported sources and infrastructure required to convey it to the Chino Basin and the local capacity to treat it if required for municipal use
- The reliability of non-Chino Basin groundwater supplies depends on water quality, water rights, and infrastructure to convey the supplies to a Parties' water system.
- The reliability of local surface water supplies depends on the hydrologic characteristics of the individual supplies, water quality, water rights, and infrastructure to convey it from points of diversion to a Party's water system.
- The challenges to maximizing the reuse of recycled water include the timing of recycled water demands, recycled water availability, and complying with the maximum benefit SNMP and water quality regulations.

In addition to the challenges to specific water sources, climate change is expected to result in higher temperatures, longer dry periods, and shorter more intense wet periods, which is expected to affect the availability and management of all water supply sources. For example, shorter more intense precipitation periods are expected to result in reduced recharge, and longer dry periods are expected to result in reduced imported water supplies (as occurred with State Water Project supplies in the recent drought from 2013 to 2016). And, many of the challenges are interrelated and compounding. For example, the reliability of imported water (and other non-groundwater supplies) not only affects the imported water supply but also the groundwater supplies that are dependent on imported water for blending and replenishment.

The facilities and/or improvements to existing facilities to improve water reliability envisioned under the OBMPU are listed below and shown on Exhibit 17.

- Constructing conveyance facilities to enable the distribution of future imported water supplies. The amount of new pipeline needed has not yet been defined.
- Constructing an east to west 75,000-lineal foot regional pipeline across the northern part of the Chino Basin to enable the efficient conveyance and distribution of basin waters to Chino Basin water users; and or the construction of improvements to existing conveyance facilities to accomplish the same.
- Constructing a north-to-south 45,000-lineal foot regional pipeline across the eastern part of the Chino Basin to enable the efficient conveyance and distribution of basin waters to Chino Basin water users; and or the construction of improvements to existing conveyance facilities to accomplish the same.

As shown in Exhibit 5, the new supplemental supplies and facilities contribute to achieving the objectives of PE 8/9.

4.3.6 Program Element 6. Develop and Implement Cooperative Programs with the Regional Board and Other Agencies to Improve Basin Management

4.3.6.1 Objectives

The 2000 OBMP included PE 6—*Develop and Implement Cooperative Programs with the Regional Board and other Agencies to Improve Basin Management*—to assess water quality trends in the basin, to evaluate the impact of OBMP implementation on water quality, to determine whether point and non-point contamination sources are being addressed by water quality regulators, and to collaborate with water quality regulators to identify and facilitate the cleanup of soil and groundwater contamination. Through the OBMPU process, the objective of PE 6 was refined to: to perform routine and coordinated water quality monitoring to characterize water quality in the Chino Basin so that there is adequate information to ensure that contamination sources are being addressed by water quality regulators and to help address compliance with new and increasingly stringent drinking water regulations for emerging contaminants established by the DDW.

4.3.6.2 2000 OBMP Project Description and Implementation Progress

The cooperative programs to improve basin management, as described in the 2000 OBMP PEIR, consisted of working cooperatively with the Regional Board and other agencies, to identify water quality anomalies through monitoring, assist in determining sources of the water quality anomalies, and establish priorities for clean-up.

Through its own monitoring at private wells and dedicated monitoring wells and the monitoring efforts of others, Watermaster reports on water quality trends and findings in several reports, including the State of the Basin Reports, which are prepared and submitted to the Court every two years.

In 2003, the Watermaster convened a Water Quality Committee to coordinate many of the activities performed under PE 6. The Committee met intermittently through 2010. The main activities of the Water Quality Committee included investigations to characterize and address point and non-point sources of groundwater contamination in the Chino Basin and collaboration with the Regional Board in its efforts to facilitate the cleanup of groundwater contamination. Some of the significant groundwater quality investigations performed under the guidance of the committee included: the characterization of groundwater contamination in MZ-3 near the former Kaiser Steel Mill and Alumax facilities, tracking studies on the source and extent of the Chino Airport plume; identification of sources and responsible parties for the South Archibald plume; and the identification of the sources of legacy perchlorate contamination in groundwater throughout the basin. The investigations were coordinated through the Water Quality Committee for the Chino Airport and South Archibald plumes and contributed to the definitive identification of responsible parties and the issuance of cleanup and abatement orders by the Regional Board.

Since 2010, Watermaster has continued to perform monitoring for contaminants related to point-source and non-point source contamination, to assist the Regional Board with the investigation and regulation of point source contaminant sites in the Chino Basin, and to prepare status reports on the monitoring and remediation of point-source contaminant sites in the basin. Periodic status reports have been prepared for: Chino Airport and South Archibald plumes[21] and the General Electric (GE) Test Cell plume, the GE Flatiron plume, the former Kaiser Steel Mill Facility plume,

[21] Status reports for the Chino Airport and South Archibald plumes were prepared monthly in 2013; quarterly from 2014-2017; and semi-annually effective in 2018. Status reports for the other plumes and sites are prepared annually effective 2018.

the CIM plume, the Stringfellow plume, and the Milliken Landfill plume. Updated delineations of the spatial extent of the plumes in the Chino Basin are prepared every two years by Watermaster and are included in the plume status reports and biennial State of the Basin Reports.

Currently, the responsible parties for the Chino Airport plume and South Archibald plume are initiating remedial actions that include the use of the Chino Basin Desalters describe in PE 3 (see Section 4.3.3) for pumping and treating the contaminated groundwater associated with these plumes. This use of the Chino Basin Desalters as a mutually beneficial project was recognized in the 2000 OBMP Implementation Plan as a potential management strategy and provides cost sharing benefits to all involved parties. Additionally, the CDA and IEUA have acquired over $85 million in federal and state grant funds for the Chino Basin Desalter Phase III expansion project that is planned to be used for the remediation of the Chino Airport and South Archibald plumes.

4.3.6.3 OBMPU Project Description

Exhibit 4 shows the implementation actions for PE 6 under the 2020 OBMP which include re-convening the water quality committee, developing and implementing an initial emerging contaminants monitoring plan, preparing a water quality assessment of the Chino Basin to evaluate the need for a *Groundwater Quality Management Plan* and preparing a long-term emerging contaminants monitoring plan.

Pursuant to the PE 6 implementation plan, Watermaster will continue to perform the following to ensure that point-source contamination is being adequately addressed: monitor water quality at monitoring wells and private wells within the basin and collect data from others to support the quantification of point-source contaminant plumes; prepare updated delineations of the plume extents for the biennial State of the Basin Reports; track and report on the status of plumes and remediation in the recurrent plume status reports; and other ad-hoc investigations needed to support the Regional Board in their efforts to address groundwater contamination. Watermaster will continue to support the Regional Board and other parties to identify and implement mutually beneficial projects for addressing groundwater contamination cleanup and identify funding opportunities to help pay for the cleanup efforts. Watermaster will continue to characterize and report on water-quality in the biennial State of the Basin Reports using data collected for the PE 1 Groundwater Quality Monitoring Program. Watermaster will also develop a *Groundwater Quality Management Plan* as a proactive and basin-wide approach to address emerging contaminants to prepare the Parties for addressing compliance with new and increasingly stringent drinking water regulations, defined by the DDW.

Exhibits 18 through 21 show the most current characterization of regulated drinking water contaminants in the Chino Basin. Exhibit 18 shows the locations of active municipal supply wells and symbolizes them based on the number of regulated drinking water contaminants that have been detected in exceedance of their respective primary maximum contaminant levels (MCLs). Of the 141 recently active municipal supply wells, 45 have at least one drinking water contaminant, 17 wells have two contaminants, 14 have three contaminants, five have four contaminants, and five have five contaminants. The wells with regulated drinking water contaminants are primarily located in the southern (south of the 60 freeway) and western (west of Euclid Avenue) areas of the Basin. Exhibits 19 through 21 show the spatial distribution of the maximum observed nitrate, 1,2,3-TCP, and perchlorate concentrations – the three most prevalent contaminants in the Chino Basin – at all wells for the five-year period of 2014 to 2018.

Several of the drinking water contaminants found in the Chino Basin are associated with known point-source contaminant discharges to groundwater. Characterizing and understanding point-sources contaminant sites are critical to the overall management of groundwater quality to ensure that Chino Basin groundwater remains a sustainable resource. Watermaster closely monitors the status, decisions, cleanup activities, and monitoring data pertaining to point-source contamination within the Chino Basin. The following is a list of the regulatory and voluntary point-source contaminant sites in the Chino Basin that are tracked by Watermaster, the locations of which are shown in Exhibit 22.

Table 4
POINT-SOURCE SITES TRACKED BY WATERMASTER

Site Name	Constituents of Concern	Order
Alumax Aluminum Recycling Facility	TDS, sulfate, nitrate, chloride	Regional Board Cleanup and Abatement Order 99-38
Alger Manufacturing Co	volatile organic chemicals (VOCs)	Voluntary Cleanup and Monitoring
Chino Airport	VOCs	Regional Board Cleanup and Abatement Orders 90-134, R8-2008-0064, and R8-2017-0011
California Institution for Men	VOCs	Voluntary Cleanup and Monitoring (No Further Action status, as of 2/17/2009)
GE Flatiron Facility	VOCs and hexavalent chromium	Voluntary Cleanup and Monitoring
GE Test Cell Facility	VOCs	Department of Toxic Substances Control (DTSC) Consent Order Docket No. 88/89-009CO. Regional Board Status of Open-Verification Monitoring
Former Kaiser Steel Mill	TDS, total organic carbon (TOC), VOCs	Regional Board Order No. 91-40 Closed. Kaiser granted capacity in the Chino II Desalter to remediate
Former Kaiser Steel Mill – CCG Property	chromium, hexavalent chromium, other metals, VOCs	DTSC Consent Order 00/01-001
Milliken Sanitary Landfill	VOCs	Regional Board Order No. 81-003
Upland Sanitary Landfill	VOCs	Regional Board Order No 98-99-07
South Archibald Plume	VOCs	Stipulated Settlement and Cleanup and Abatement Order No. R8-2016-0016 to a group of eight responsible parties
Stringfellow Site National Priorities List (NPL) Superfund Site	VOCs, perchlorate, N-nitrosodimethylamine (NDMA), trace metals	United States Environmental Protection Agency (USEPA) Records of Decision (RODs): R09-83/005, R09-84/007, R09-87/016, and R09-90/048.

Finally, tracking emerging contaminants that are being considered for regulation and performing monitoring to characterize their occurrence in the Chino Basin will help to identify and plan for optimal solutions to manage groundwater quality for drinking water supply. Exhibit 23 shows the occurrence of two emerging contaminants that may be regulated in the future – the per-and polyfluoroalkyl substances (PFAS) compounds—perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS)—in groundwater and some blending sources for the recycled water recharge in the Chino Basin as of March 2019, based on all monitoring performed since 1998. The exhibit shows that the majority of wells in the Chino Basin have not been sampled for PFOA and/or PFOS. The 30 wells in the Chino Basin that have been sampled for PFOA and PFOS were tested using the laboratory detection limits four and eight times higher than the current notification levels (NLs) for these emerging contaminants. Monitoring of recycled water recharge blending sources shows that many of the sources sampled have detectable concentrations of PFOA and

PFOS, and many are above the NLs. The EPA and the DDW have both indicated that they are moving forward with the process to adopt MCLs for PFOA and PFOS in the near future. The occurrence of PFOA and PFOS in Chino Basin groundwater as of March 2019 is not well characterized at concentrations equivalent to or below the current NLs, and there are recharge water sources with concentrations of PFOA and PFOS above the NLs.

The facilities and/or improvements to that may be implemented based on the recommendations of the *Groundwater Quality Management Plan* to address the contaminants described herein and other contaminants are listed below.

- Constructing water treatment facilities at well sites or at sites near to wells to treat groundwater to meet drinking water standards for local use.
    - The area expected to be disturbed by the construction and operation of the treatment facilities would be limited to existing well sites if the plant is located at an existing well site; and will range from about 0.5 acres to 2 acres per facility for new treatment facilities located near a well site. The locations of these treatment facilities are currently unknown.
- Constructing regional water treatment facilities taking groundwater from multiple wells to treat groundwater to meet drinking water standards for local use and or export.
    - The area expected to be disturbed by the construction and operation of the treatment facilities is expected to be less than 20 acres per facility. The locations of the treatment facilities are currently unknown.
- Constructing improvements at existing treatment facilities to treat contaminated groundwater to drinking water standards for local use.
- Constructing conveyance facilities to convey the untreated groundwater to the treatment facilities and to convey treated water from the treatment facilities to water users.

4.3.7 Program Element 7. Develop and Implement Salt Management Plan

4.3.7.1 Objectives

The 2000 OBMP included PE 7—*Develop and Implement Salt Management Plan*—to characterize current and future salt and nutrient conditions in the basin and to subsequently develop and implement a plan to manage them. Such a management strategy was necessary to address historical salt and nutrient accumulation from agricultural operations and to support the aggressive expansion of recycled water recharge and reuse envisioned in PEs 2 and 5. Through the OBMPU process, the objective of PE 7 was refined to: implement, and periodically update, the maximum benefit SNMP. The maximum benefit SNMP is a Regional-Board-approved management program incorporated into the Water Quality Control Plan for the Santa Ana River Basin (Basin Plan) to monitor, characterize, and address current and future salt and nutrient conditions in the Chino Basin. The maximum benefit SNMP enables the implementation of the recycled water recharge program in PE 2 and the direct reuse of recycled water in PE 5.

4.3.7.2 2000 OBMP Project Description and Implementation Progress

The salt management plan, as described in the 2000 OBMP PEIR, consisted of computing a salt budget for existing conditions as the baseline, developing alternatives to reflect the OBMP Implementation, and computing the salt budget for these alternatives to ensure that Watermaster reduced the salt loading then projected to occur in the Chino Basin.

In 2002, recognizing that implementing the recycled water reuse program would require large-scale treatment and mitigation of salt loading under the then-current antidegradation objectives for TDS and nitrate defined in the Basin Plan, Watermaster and the IEUA petitioned the Regional

Board to establish a maximum benefit-based SNMP that involved (1) defining a new groundwater quality management zone that encompasses the northern parts of MZ-1, MZ-2 and MZ-3 called the Chino-North GMZ, (2) establishing TDS and nitrate objectives for the Chino-North GMZ[22] to numerically higher values than established for MZ-1, MZ-2 and MZ-3 to enable maximization of recycled water reuse and (3) committing to a program of salt and nutrient management activities and projects ("maximum benefit commitments") that ensure the protection of beneficial uses of the Chino-North GMZ and downgradient waters (the Santa Ana River and the Orange County GMZ). The technical work performed to support the maximum benefit SNMP proposal included the development and use of an analytical salt budget tool to project future TDS and nitrate concentrations in the Chino-North GMZ with and without the maximum benefit SNMP. The maximum benefit SNMP was incorporated into the Basin Plan by the Regional Board in January 2004.

Implementation of the maximum benefit SNMP is a regulatory requirement of the Basin Plan. The requirement is also incorporated into Watermaster and the IEUA's recycled water recharge program permit (R8-2007-0039) and the IEUA's recycled water discharge and direct reuse permit (R8-2015-0021; NPDES No. CA 8000409). There are nine maximum benefit commitments included in the Basin Plan and recycled water permits:

1. The development and implementation of a surface-water monitoring program
2. The development and implementation of a groundwater monitoring program
3. The expansion of the Chino-I Desalter to 10 mgd and the construction of the Chino-II Desalter with a design capacity of 10 mgd
4. The additional expansion of desalter capacity to a total capacity of 40 mgd pursuant to the OBMP and the Peace Agreement
5. The construction of the recharge facilities included in the Chino Basin Facilities Improvement Program
6. The management of recycled water quality to ensure that the IEUA agency-wide, 12-month running average wastewater effluent quality does not exceed 550 milligrams per liter (mgl) for TDS and 8 mgl for total inorganic nitrogen (TIN)
7. The management of the basin-wide, volume-weighted TDS and nitrate concentrations of artificial recycled, storm, and imported waters to concentrations that are less than or equal to the maximum benefit objectives as a five-year rolling average
8. The achievement and maintenance of the Hydraulic Control of groundwater outflow from the Chino Basin, specifically from the Chino-North GMZ, to protect the water quality of the Santa Ana River and downstream beneficial uses
9. The triennial recalculation of ambient TDS and nitrate concentrations of the Chino Basin GMZs

These commitments are all activities that were planned to be implemented in the 2000 OBMP through implementation actions within PEs 1, 2, 3, 5, and 7.

Watermaster and the IEUA are also required to prepare an annual report to the Regional Board on the status of implementation of the maximum benefit commitments, including reporting of annual data collected through the monitoring program and assessments of compliance with the groundwater and recycled water-quality limits defined in the SNMP. If the maximum benefit commitments are not implemented to the Regional Board's satisfaction, the antidegradation-based objectives would apply for regulatory purposes. The application of the antidegradation

[22] The Chino-North GMZ has a maximum-benefit TDS objective of 420 mgl and is a combination of the Chino-1, Chino-2, and Chino-3 antidegradation GMZs that have lower TDS objectives, ranging from 250 to 280 mgl.

objectives would result in a finding of no assimilative capacity for TDS and nitrate in the Chino-North GMZ, and the Regional Board would require mitigation for all recycled water discharges to Chino-North that exceeded the antidegradation objectives retroactively to January 1, 2004. The retroactive mitigation for past discharges would be required to be completed within a ten-year period, following the Regional Board's finding that the maximum benefit commitments were not met.

Watermaster has prepared and submitted annual reports to the Regional Board every year since 2005. As of the most recent annual report for CY 2018, Watermaster and the IEUA remain in compliance with all requirements of the maximum benefit commitments.[23]

4.3.7.3 OBMPU Project Description

Exhibit 4 shows the implementation actions for PE 7 under the OBMPU, which include (1) completing the 2020 update of TDS and nitrate projections to evaluate compliance with maximum benefit SNMP and, if necessary, based on the outcome, preparing a plan and schedule to implement a salt offset compliance strategy,[24] (2) continuing to implement the maximum-benefit SNMP pursuant to the Basin Plan (see list below), and (3) starting in 2025 and every five years thereafter, updating water quality projections to evaluate compliance with the maximum-benefit salt and nutrient management plan.

Compliance with the maximum benefit commitments is an ongoing requirement of the Basin Plan. The ongoing actions to implement the maximum benefit SNMP as currently defined in the Basin Plan, and thus PE 7, will include:

- Implementing monitoring program and reporting requirements
- Maintaining Hydraulic Control through operation of the Chino Basin Desalters and other means, as necessary
- Increasing and maintaining desalter pumping at 40,000 afy
- Continuing storm and imported water recharge program to comply with recycled water recharge dilution requirements
- Complying with recycled water TDS and TIN limitations
- Computing ambient water quality every three years
- Constructing treatment and/or salt offset facilities if one or more of the compliance limits are exceeded.

There are three water-quality limitations and associated compliance metrics established in the maximum benefit SNMP. When these metrics are exceeded, Watermaster and the IEUA must develop a plan and schedule to achieve compliance. The limitations, compliance metrics, and compliance actions are summarized in Exhibit 24.

The management actions for achieving compliance with the metrics once they are exceeded could include, but are not limited to: desalting recycled water to reduce TDS concentrations, increasing the recharge of low-TDS supply sources (storm or imported waters), additional desalting of high-TDS groundwater as a salt offset or combination of the above.

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[23] WEI. (2019). *Optimum Basin Management Program Chino Basin Maximum Benefit Annual Report 2018*. April 2019.

[24] The management actions for achieving compliance with the metrics once they are exceeded could include, but are not limited to: desalting recycled water to reduce TDS concentrations, increasing the recharge of low-TDS supply sources (storm or imported waters), or additional desalting of high-TDS groundwater as a salt offset. It could also include: new regulatory compliance metric based on a longer-term averaging period for recycled water TDS

With the exception of the ambient nitrate concentration of the Chino-North GMZ, which has exceeded the objective of 5.0 mgl since it was established in 2004, none of the other TDS and nitrate limitations have been exceeded. That said, the ambient TDS and nitrate concentrations in the Chino-North GMZ continue to increase due to legacy agricultural activities and current irrigation practices regardless of water source. The current ambient TDS and nitrate concentrations are 360 and 10.3 mgl, respectively. Based on the rate of increase of the ambient TDS concentration since 1997, which has been about three mgl per year, the maximum benefit objective of 420 mgl is not expected to be exceeded until about 2035.

More recently, the TDS concentration of recycled water has approached the compliance metric defined in commitment number 6. During the 2012 to 2016 drought, the 12-month running-average IEUA agency-wide TDS concentration in recycled water approached the 545 mgl action limit that would require the IEUA and Watermaster to submit a water-quality improvement plan and schedule. In analyzing the available data, the IEUA determined that the primary drivers for the increasing recycled water TDS concentration were the increase in the TDS concentration of the water supplies used by its member agencies and an increase of the TDS waste increment[25] due to indoor water conservation. Similarly, drought conditions also threaten the ability to comply with the recycled water recharge dilution requirements. During drought conditions there is: a reduction in the amount of high-quality stormwater recharge, limited or no availability of imported water for recharge, an increase in the TDS concentrations of imported water, and a concomitant increase in the TDS concentrations of the recycled water. Not only are the two primary sources of low-TDS recharge water less available during drought periods, but the source water quality of municipal water supplies is also higher in TDS due to increases in imported water TDS and indoor water conservation practices. It is expected that future droughts, the duration and frequency of which could be exacerbated by climate change, could potentially threaten compliance with the existing permit limits.

Although the 12-month running-average IEUA agency-wide TDS concentration declined from the 2015 peak before reaching the 545 mgl action limit, it was an important indicator that the TDS concentration of recycled water is likely to approach or exceed the recycled water action limit during the next prolonged dry period and trigger the planning for recycled water quality improvements. In May 2017, recognizing the potential cost of implementing recycled water quality improvements for what might be only short-term exceedances of the action limit, Watermaster and the IEUA petitioned the Regional Board to consider updating the maximum benefit SNMP to incorporate a revised compliance metric for recycled water TDS and nitrate specifically to allow a longer-term averaging period. The Regional Board agreed that an evaluation of the recycled water compliance metric is warranted and directed Watermaster and the IEUA to develop a technical scope of work to demonstrate the potential impacts of the revised compliance metric.

The primary objectives of the technical work to support the maximum benefit SNMP and permit updates are: to develop and use an updated groundwater solute-transport model to evaluate the TDS and nitrate concentrations of the Chino Basin (e.g. a new salt-budget tool), to define alternative salinity management scenarios, and to project the future TDS and nitrate concentrations in the Chino Basin for each scenario. The results will be used to work with the Regional Board to develop a regulatory compliance strategy that potentially includes a new

[25] The TDS concentration of wastewater that is treated at a given reclamation plant is higher than the source water TDS concentration served in the sewer shed tributary to the reclamation plant. The TDS “waste increment” is the increase in the TDS concentration, measured in mgl, that occurs due to indoor water use activities (showering, toilet flushing, laundry, etc.). Indoor water conservation measures that reduce indoor water use volumes can increase the TDS waste increment because the same mass of TDS additions from the indoor activities are being disposed of with a smaller volume of water.

compliance metric based on a longer-term averaging period for recycled water TDS, contingent on the ongoing modeling and analysis efforts. The regulatory compliance strategy can also address any projected challenges in complying with the recycled water dilution requirements. The work began in September 2017 and is expected to be completed in 2020.

The Regional Board has indicated that in accepting any proposal to modify the recycled water compliance metrics, it will require Watermaster and the IEUA to add a new maximum benefit commitment to the Basin Plan that involves updating the TDS and nitrate projections every five years. Thus, proactive planning to achieve compliance is a required ongoing activity under PE 7 and the maximum benefit SNMP.

If compliance with the maximum benefit limitations were to become an issue, and/or if changes in basin management and operation as described herein impact the ability to maintain Hydraulic Control, the facilities and/or improvements to that may need to be implemented are listed below and shown on Exhibit 25.

- Constructing a new treatment train at one or more IEUA recycled water treatment plants (RP-1, RP-4, RP-5, CCWRF) to reduce the TDS concentration of recycled water to levels that ensure compliance with IEUA and Watermaster's recycled water permits. The area disturbed during construction of the new treatment train capacity expansion would be limited to the disturbed areas at IEUA's existing recycled water treatment plants.
- Constructing an advanced water treatment plant (see Section 4.3.5.2).
- Expanding the existing Chino Desalter capacity by up to 6,000 afy by adding new wells and either expanding the Chino-I and/or Chino-II treatment capacity or constructing a new treatment facility and product water conveyance facilities.
  - The area disturbed during construction of the treatment plant capacity expansion would be limited to the disturbed areas at the existing Chino Desalter treatment plant sites.
  - Developing 6,000 afy of new groundwater supply
    - Constructing up to eight wells in the existing desalter well field areas to increase pumping up to 6,000 afy to maintain Hydraulic Control and to mitigate reductions in net recharge and Safe Yield caused by land subsidence management and Storage and Recovery Programs. Well depths could range from 250 to 1,000 feet. The average area of disturbance of a well site is anticipated to be half an acre or less.
    - Acquiring up to five existing wells in in the Chino Creek well field area that, in aggregate, can pump up to 2,000 afy to maintain Hydraulic Control.
    - Combination of constructing new and acquiring existing wells up to a pumping capacity of 6,000 afy to maintain Hydraulic Control and to mitigate reductions in net recharge and Safe Yield caused by land subsidence management and Storage and Recovery Programs.
    - Constructing brine management facilities.
- Construct a new treatment plant, new wells, and new conveyance facilities to accomplish the same effect as described above to expand the existing Chino Desalter system capacity by up to 6,000 afy.

4.3.8 Program Element 8. Develop and Implement Groundwater Storage Program and Program Element 9. Develop and Implement Conjunctive Use Program

4.3.8.1 Objectives

The objectives of PE 8 are (1) to develop and implement a storage management plan that prevents overdraft, protects water quality, and ensures equity among the Parties, and (2) to periodically recalculate Safe Yield. The objective of PE 9 is to develop Storage and Recovery Programs that benefit all Parties in the basin and ensure that basin waters and storage capacity are put to maximum beneficial use without causing MPI to any producer or the basin. Through the OBMPU process, the objectives of PEs 8 and 9 have been refined to:

- PE 8: Implement, and periodically update, a storage management plan that: (1) is based on the most current information and knowledge of the basin, (2) prevent unauthorized overdraft, (3) prioritize the use of storage space to meet the needs and requirements of the lands overlying the Chino Basin and of the Parties over the use of storage space to store water for export.
- PE 9: Support the development and implementation of Storage and Recovery Programs in the Chino Basin that provide defined benefits to the Parties and the basin.

PEs 8 and 9 have been combined for discussion because the Implementation Plans for these PEs were combined in the IPs.

4.3.8.2 2000 OBMP Project Description and Implementation Progress

The groundwater storage management program described in the 2000 OBMP PEIR considered, four potential methodologies for setting storage limits that included: (1) deducting rising water losses from planned storage for all local storage accounts and for the storage accounts of non-Judgment parties, (2) establishing arbitrary storage limits, such as a multiple of the Safe Yield, (3) limiting storage based on the time that water is in storage, such as not being able to store water for more than 10 years and (4) limiting storage based on total storage and the time that water is in storage. Under all methodologies, Parties would sell their current year underproduction to Watermaster or other parties to the Judgment each year if their local storage accounts are full, and the water would then be used to meet Replenishment Obligations. The conjunctive use programs, as described in the 2000 OBMP PEIR, consisted of (1) completing the existing short-term conjunctive-use project, (2) seasonal peaking program for in-basin use and dry-year yield program to reduce the demand on various water supply entities to 10 percent of normal summer demand (requiring 150,000 acre-ft of storage), (3) dry-year yield export program, and (4) seasonal peaking export program.

Watermaster has developed rules and regulations, standard storage agreements, and related forms pursuant to the Judgment and Peace Agreement. There are three types of storage agreements that result in five types of storage accounts: Excess Carryover, Local Supplemental-Recycled, Local Supplemental-Imported, Pre-2000 Quantified Supplemental, and Storage and Recovery. An Excess Carryover account includes a Party's unproduced rights in the Safe Yield (Safe Yield for Overlying Non-Agricultural Pool Parties and Operating Safe Yield for Appropriative Pool Parties) and Basin Water acquired from other Parties. A Local Supplemental Water account includes imported and recycled water that is recharged by a Party and similar water acquired from other Parties. A Storage and Recovery account includes Supplemental Water and is intended to produce a "broad and mutual benefit to the Parties to the Judgment" (§5.2(c)(iv)(b) of the Peace Agreement). Watermaster tracks the puts, takes, losses, and end of year storage totals for all of these storage accounts, and reports on this accounting in the annual assessment process. The losses assessed by Watermaster are based on the amount of water in managed storage (excluding Carryover) and they offset the increase in groundwater discharge to the Santa Ana

River from the Chino Basin attributable to managed storage (excluding Carryover). Watermaster also assesses losses due to evaporation on the puts when water is recharged in spreading basins.

In evaluating applications for storage agreements, Watermaster must conduct an investigation to determine if the water stored and recovered under a proposed storage agreement has the potential to cause MPI to a Party or the basin. If Watermaster determines that implementation of the proposed storage agreement has the potential to cause MPI, the applicant must revise its application and demonstrate that there will be no MPI, or Watermaster must impose conditions in the storage agreement to ensure there is no MPI. Watermaster cannot approve a storage agreement that has the potential to cause MPI.

The Parties, amongst themselves, are actively involved in water transfers of annual unproduced rights in the Safe Yield and water in their storage accounts. Watermaster has an application and review process for transfers that is similar to the storage agreement application process. Transfers are one way that the Parties recover water held in storage accounts.

A final SSC of 500,000 af was established in the 2000 OBMP Implementation Plan. The water occupying the SSC includes Carryover, and water stored in Excess Carryover and Local Supplemental Storage accounts. Water stored for Storage and Recovery Programs also occupies space in the SSC. Water in Carryover, Excess Carryover, local supplemental, and Storage and Recovery accounts are referred to collectively as “managed storage.”

Watermaster keeps a record of the puts, takes, losses, and end of year storage totals for all of these storage accounts, and reports on this accounting in the annual assessment process. Starting in 2005, pursuant to the Peace Agreement and OBMP Implementation Plan, Watermaster began assessing losses in stored water at a rate of two percent per year. In February 2016, Watermaster changed the loss rate to 0.07 percent per year, based on the estimated groundwater discharge from the Chino-North GMZ to the Santa Ana River (a finding of the Safe Yield recalculation).

The only active Storage and Recovery Program in the basin is the Metropolitan Dry-Year Yield Program (DYYP). The DYYP can store up to 100,000 af with maximum puts of 25,000 afy and maximum takes of 33,000 afy. The DYYP Storage and Recovery agreement provides that puts and takes can exceed these values if agreed to by Watermaster (as was done in fiscal years 2018 and 2009, respectively). The agreement that authorizes the DYYP will expire in 2028.

Exhibit 26 summarizes the amount of water in managed storage by the Parties and for the DYYP. The total volume of water in managed storage as of June 30, 2019 was about 549,200 af, which includes about 46,000 af stored in the DYYP account. As previously stated, and described below, in 2017, the IEUA adopted an Addendum to the Peace II SEIR that provided a temporary increase in the SSC to 600,000 af through June 30, 2021 and required Watermaster to update the storage management plan.

4.3.8.3 OBMPU Project Description

Exhibit 4 shows the implementation actions for PE 8/9 under the OBMPU, which include (1) complete and submit to the Court the 2020 Safe Yield Recalculation, (2) completing and submitting to the Court the 2020 Storage Management Plan (SMP), (3) developing a *Storage and Recovery Master Plan* to support the design of optimized storage and recovery programs that are consistent with the 2020 Storage Management Plan and provide the Watermaster with criteria to review, condition, and approve applications in a manner that is consistent with the Judgment and the Peace Agreement, (4) assessing losses from storage accounts based on the findings of the

2020 Safe Yield Recalculation, (5) updating the Storage Management Plan, (6) perform safe yield recalculation every 10 years (2030, 2050), and (7) updating the storage loss rate following each recalculation of Safe Yield (2030, 2040, 2050) and during periodic updates of the SMP.

2020 Storage Management Plan

The 2000 OBMP storage management plan is based on fixed storage volumes (e.g. the OSR and the Safe Storage), and its technical basis is not supported by new information available after the storage management plan was first developed. Review of the new information developed pursuant to the OBMP since 1999 indicates that it is possible to expand the use of storage space beyond that anticipated in the 2000 OBMP and Peace Agreement implementation plan. This new information includes: an updated hydrogeologic conceptual model; 20 years of intensive monitoring of basin operations (not available in 1999), including monitoring the basin response to managed storage activities; and groundwater model-based projections of the basin response to future management plans where the managed storage exceeded the SSC of 500,000 af. Re-operation, which over time will reduce the amount of Basin Water in storage by 400,000 af, was not accounted for in the 2000 OBMP storage management plan.

New information developed since 1999 suggests that the use of managed storage to meet future desalter and other Replenishment Obligations could cause potential MPI and other adverse impacts: it has the potential to exacerbate land subsidence and pumping sustainability challenges, impact net recharge and Safe Yield, increase groundwater discharge through the CCWF and cause a loss of Hydraulic Control, and change the direction and speed of the contaminant plumes. Thus, Watermaster initiated a process to update the OBMP storage management plan to enable increased storage by the Parties and to include features that will ensure there is no MPI to a Party or the basin caused by the conjunctive-use activities of the Parties and Storage and Recovery Programs.

The *Storage Framework Investigation*[26] (SFI) was completed in 2018 to provide technical information required to update the 2000 OBMP storage management plan that is included in the Peace Agreement implementation plan. In the SFI, future projections of the use of managed storage[27] were estimated and evaluated for potential MPI and other adverse impacts[28]. The SFI projected that MPI and other adverse impacts could occur due to the implementation of prospective Storage and Recovery Programs and described potential facilities and operating concepts that, if implemented, would minimize potential MPI and adverse impacts. The results of the SFI, together with the *Final 2020 Storage Management Plan White Paper,* [29] were used to inform the development of the *2020 Storage Management Plan* (SMP).

The Watermaster completed the 2020 SMP in December 2019. The 2020 SMP includes the following provisions regarding the use of storage space in the basin:

- An aggregate amount of 800,000 af is reserved for the Parties' conjunctive-use activities (includes Carryover, Excess Carryover, and Supplemental Accounts) and Metropolitan's DYYP. This amount is referred to as the "First Managed Storage Band" (FMSB).

[26] WEI. (2018). *Storage Framework Investigation – Final Report*. Prepared for the Chino Basin Watermaster. October 2018.
[27] Managed storage refers to water stored by the Parties and other entities and includes Carryover, Local Storage, and Supplemental Water held in storage accounts by the Parties and for Storage and Recovery Programs.
[28] Adverse impacts include and are not limited to reductions in net recharge and Safe Yield and increases in groundwater discharge from the Chino North GMZ to the Santa Ana River that have the potential to cause a loss of Hydraulic Control.
[29] WEI. (2019). *Final 2020 Storage Management Plan White Paper*. Prepared for the Chino Basin Watermaster. July 2019.

- The managed storage space between 800,000 and 1,000,000 af is reserved for Storage and Recovery Programs.
  - Storage and Recovery Programs that utilize the managed storage space above 800,000 af will be required to mitigate potential MPI and other adverse impacts as if the 800,000 af in the FMSB is fully used.
  - Renewal or extension of the DYYP agreement will require the DYYP to use storage space above the 800,000 af of the FMSB.

The 2020 SMP includes the following provisions specific to the Parties and Storage and Recovery Program:

- Watermaster will prioritize the use of spreading basins to satisfy Watermaster's recharge and Replenishment Obligations over the use of spreading basins for other uses.
- With regard to the storage management activities of the Parties:
  - Watermaster acknowledges transfers or leases of water rights and water held in managed storage (hereafter transfers) from Parties that are situated such that they pump groundwater outside of MZ-1 to Parties that pump in MZ-1 have the potential to cause potential MPI.
  - The reduction in net recharge caused by storage in the FMSB is an adverse impact, and Watermaster considers this adverse impact to be mitigated by the prospective calculation of Safe Yield.
- With regard to the Storage and Recovery Programs:
  - Puts and takes should be prioritized to occur in MZ-2 and MZ-3 to avoid new land subsidence and interfering with land subsidence management in MZ-1, to minimize pumping sustainability challenges, to minimize the impact of Storage and Recovery operations on solvent plumes, to preserve the state of Hydraulic Control, and to take advantage of the larger and more useful storage space in MZ-2 and MZ-3.
  - Watermaster will evaluate Storage and Recovery Program impacts, assess MPI (including, but not limited to land subsidence, pumping sustainability, water quality, shallow groundwater, and liquefaction), and define mitigation requirements. The Storage and Recovery Program applicants must develop mitigation measures acceptable to Watermaster and include them in the Storage and Recovery Program agreements.
  - Watermaster will evaluate the Storage and Recovery Program, assess adverse impacts (including, but not limited to reductions in net recharge and Safe Yield and an increase in the groundwater discharge from the Chino North GMZ to the Santa Ana River contributing to a loss of Hydraulic Control), and define mitigation requirements. The Storage and Recovery Program applicants must develop mitigation measures acceptable to Watermaster and include them in the Storage and Recovery Program agreements.
  - Watermaster will periodically review current and projected basin conditions and compare this information to the projected basin conditions prepared in the evaluation of the Storage and Recovery Program applications; compare the projected Storage and Recovery Program operations to actual Storage and Recovery Program operations; make findings regarding the efficacy of related mitigation of MPI and other adverse impact requirements and measures in the Storage and Recovery Program storage agreements; and based on its review and findings, require changes in the Storage and Recovery Program agreements to mitigate MPI and adverse impacts.

- Watermaster will modify the existing *Form 8 Local Storage Agreements* to be consistent with an "evergreen agreement" paradigm and establish that the evergreen agreements will be valid for the duration of the Peace Agreement and will be automatically adjusted upon Watermaster's approval of each subsequent Assessment Package so long as the cumulative amount of water in storage is less than the quantity reserved for the Parties' conjunctive-use operations and Metropolitan's DYYP (cumulatively, the FMSB) and Watermaster has made no finding that MPI is threatened to occur as a result of the increase in the quantity of water in storage.
- Watermaster will periodically review and update the SMP at a frequency of no less than once every five years, when the Safe Yield is recalculated, when it determines a review and update is warranted based new information and/or the needs of the Parties or the basin, and at least five years before the aggregate amount of managed storage by the Parties is projected to fall below 340,000 af.

The facilities and/or improvements to existing facilities envisioned under the OBMPU to conduct a Storage and Recovery Program within the SMP are listed below and shown on Exhibit 27.

- Constructing up to 40 new ASR wells and/or 30 new conventional production wells in MZ-2/3 north of Highway 60 to increase pumping and recharge capacity by up to 70,000 afy to implement Storage and Recovery programs. [30]
  - Depth of new wells could range between 500 and 1,500 feet.
  - The average area of disturbance of a site is anticipated to be half an acre or less.
  - Constructing conveyance and treatment facilities to supply water to the ASR wells for recharge.
  - Constructing conveyance and treatment facilities to supply the recovered stored groundwater from the ASR wells to municipal and industrial users within and outside of the Chino Basin.
- Expanding the Chino Desalters or construction of new functionally equivalent facilities (see Section 4.3.7.2) to mitigate increases in groundwater discharge from the Chino North GMZ to the Santa Ana River caused by a Storage and Recovery Program that has the potential to cause a loss of Hydraulic Control. These same facility improvements could be used to mitigate the loss of net recharge and Safe Yield caused by a Storage and Recovery Program.
- Constructing facility improvements at active groundwater remediation projects to mitigate the effects of Storage and Recovery Program on the remediation projects (see Section 4.3.6.2). These improvements could include construction of additional wells and raw water conveyance facilities, treatment plant expansions and other treatment modifications and product water facilities
- Constructing replacement wells and or modification to existing wells to mitigate loss of pumping capacity caused by a Storage and Recovery Program.

5. SUMMARY OF ALL FACILITIES

The 2020 OBMPU and related documents is a revision of the implementation plans included in the Peace and Peace II Agreements and incorporates the new activities in the 2020 OBMPU and ongoing activities from the 2000 OBMP. The 2020 OBMPU IP puts forth a series of one-time actions and ongoing management processes, organized by Program Elements (PE), that help achieve the goals of the OBMP and set the framework for the next 30 years of basin-management activities. This section of the Project Description is intended to outline the specific facilities and

[30] Some of the new conventional pumping wells and ASR that will be constructed for PE 2 and 4, respectively, can be used for PE 8/9.

specific types of facilities and/or improvements that could result from the implementation of the OBMPU. These facilities are listed in Exhibit 5 and are outlined in further detail below.

5.1 Monitoring Wells and Devices

PE 1

The objectives of PE 1 under the OBMPU to provide the information necessary to support the implementation of all other OBMP PEs and to evaluate their performance. In order to accomplish the objectives of PE 1, as outlined under Project Characteristics above, the following monitoring facilities are required:

Groundwater-level monitoring. Under the OBMPU, up to 100 new monitoring wells will be constructed for multiple purposes to monitor groundwater levels in the Chino Basin with total depths ranging from 50 to 1,500 feet. The average area of disturbance of each well site is anticipated estimated to be half an acre or less. The precise location of the proposed new wells is unknown at this time, beyond that they will be located within the Chino Basin, shown on Exhibit 6. The new monitoring wells will be equipped with pressure transducer data-loggers that measure and record groundwater levels.

Groundwater-quality monitoring. Under the OBMPU, these new monitoring wells will be constructed to monitor groundwater quality in the Chino Basin with total depths ranging from 50 to 1,500 feet and four- to six-inches in diameter. The average area of disturbance of each well site is estimated to be half an acre or less. Additionally, the ongoing groundwater-quality monitoring program will continue. The precise location of the proposed new wells is unknown at this time, beyond that they will be located within the Chino Basin, shown on Exhibit 7. A subset of the new monitoring wells will be equipped with probes that measure and record water-quality parameters.

Groundwater-production monitoring. Under the OBMPU, Watermaster's ongoing groundwater-production monitoring program will continue. Up to 300 in-line flow meters will be installed in private wells to accurately estimate production by the Agricultural Pool. The flow meters are installed on the existing well discharge pipe. The proposed/possible locations for the in-line flow meters on Agricultural Pool wells are shown on Exhibit 8.

Surface Water and Climate Monitoring. Under the OBMPU, Watermaster and IEUA's ongoing surface-water and climate monitoring efforts will continue. Surface-water discharge and stage measuring equipment and meteorological monitoring equipment will be installed in and near stormwater drainage and recharge facilities, respectively, to improve the accuracy of surface-water diversion and recharge measurements. The surface-water discharge equipment will consist of flow meters, data loggers and communications equipment that measure flow rate at discrete points along creeks, and inlets and outlets of existing recharge facilities, store the measure data and transmit it to IEUA's SCADA system. The surface-water stage monitoring equipment will consist of pressure transducer data-loggers and communications equipment that measure and record water levels, store the measurement data and transmit it to IEUA's SCADA system. The meteorological monitoring equipment will be similar to the California Irrigation Management Information System (CIMIS) stations and include data loggers and communications equipment. The proposed/possible locations for the installation of surface-water and climate monitoring devices are shown on Exhibit 9.

Ground-level monitoring. Under the OBMPU, Watermaster's ongoing ground-level monitoring program will continue. Up to three new extensometers will be constructed in the areas prone to subsidence with total extensometer depths of up to 1,500 feet. An extensometer is a sophisticated monitoring facility consisting of piezometers and extensometers. As the aquifer system undergoes various stresses due to groundwater production and recharge, the facility monitors the hydraulic response of the aquifer system at the piezometers and the mechanical response of the aquifer system at the extensometers. The facility is equipped with pressure transducers to measure water levels in the piezometers, linear potentiometers to measure the vertical aquifer-system deformation at the extensometers, and data loggers to record the data at frequent intervals (e.g. 15 minutes). The possible locations of the extensometers are within the Areas of Subsidence concern shown on Exhibit 10.

5.2 ASR, Injection and Pumping Wells

PE 2

Under the OBMPU, the objective of PE 2, as outlined under Section 4, Project Characteristics above, includes the implementation of recharge projects based on need and available resources. The new recharge facilities that may result from the RMPU process as envisioned under the OBMPU are listed below and shown on Exhibit 12; however, the precise location for well development sites is unknown at this time, beyond that the proposed wells are expected to be located north of Highway 60 in MZ-1, MZ-2 and MZ-3 within Chino Basin.

Aquifer Storage and Recovery (ASR) Wells (Part 1). ASR wells are used to inject treated supplemental water into the Basin and to pump the injected groundwater on some periodic schedule. The OBMPU envisions constructing up to 60 ASR wells to increase supplemental water recharge capacity by up to 70,000 afy. Some of the new ASR wells that will be constructed for PE 2 can be used for PE's 4, 7 and 8/9; as such the total number of ASR wells anticipated to be constructed under these assumptions is 60. In the case that recycled water is injected into the Chino Basin, an ASR well would be replaced by one dedicated injection well plus one conventional extraction well. Please refer to the discussion under Wells: PE 4 and Wells: PE 8/9 below. The ASR wells also meet the objectives of **PEs 4, 5, 7 and 8/9**, the objectives of which are outlined under Section 4, Project Characteristics above.

- The depth of new ASR wells and/or injection/extraction well pairs could range between 500 and 1,500 feet.
- The average area of disturbance of each well site is estimated to be half an acre or less.
- The installation of the proposed ASR wells and or injection/extraction well pairs includes the construction of facilities to convey the supplemental water to the ASR wells and to convey pumped groundwater to end users. Conveyance facilities include pipelines, booster stations, reservoirs and related appurtenances. The length of pipelines is estimated to be about 150,000 lineal feet (LF). The location of associated booster stations, reservoirs and minor appurtenances are currently unknown.
- The installation of the proposed injection wells includes the construction of improvements to wastewater treatment plants if recycled water is injected (described under Wastewater Treatment Facilities below).
- The expected location of ASR wells is north of Highway 60 in MZ-1, MZ-2 and MZ-3.

PE 4

As outlined under Section 4, Project Characteristics above, the goal of PE 4 is to develop and implement comprehensive groundwater management plan for Management Zone 1 that will characterize land subsidence spatially and temporarily, identify its causes, and, where appropriate, develop and implement a program to manage it. Under the OBMPU, facilities may be needed to: (1) relocate pumping from Northwest MZ-1 to MZ-2 and/or MZ-3, (2) replace some of their pumping with surface water as a form of in-lieu recharge, (3) facilitate increased wet-water recharge, or (4) a combination of some or all of the above. As such, the following well development projects that are envisioned to address land subsidence are listed below and are shown on Exhibit 14.

MZ 1 Well Relocation. The OBMPU envisions constructing up to 10 wells in MZ-2 and MZ-3 to relocate up to 25,000 afy of pumping from MZ-1 to MZ-2 and/or MZ3. The depth of these new wells could range between 500 and 1,000 feet and the average area of disturbance of a well site is anticipated to be half an acre or less. Conveyance facilities to convey the water pumped from these new wells to MZ1 pumpers include pipelines, booster pump stations, reservoirs and related appurtenances, the capacity and locations of which are presently unknown. The new wells could also meet the objectives of **PE 8/9**, the objectives of which are outlined under Section 4, Project Characteristics above.

Aquifer Storage and Recovery (ASR) Wells (Part 2). The OBMPU envisions constructing up to 15 ASR wells in Northwest MZ-1 and Central MZ-1 (part of the 60 overall ASR wells) to increase wet-water recharge capacity in MZ-1 by up to 25,000 afy. This will require improvements to the WFA Agua de Lejos treatment plant to increase its capacity by up to 25,000 afy and the increase in use of imported water purchased from Metropolitan Water District of Southern California by up to 25,000 afy. Some of the surface water supplied could be obtained through TVMWD from its Miramar treatment plant. Some of the new ASR wells that will be constructed for PE 2 can be used for PE 4; as such the total number of ASR wells anticipated to be constructed is: 15. Please refer to the discussion under Wells: PE 2 above and Wells: PE 8/9 below. The ASR wells also meet the objectives of **PEs 2, 5, 7 and 8/9**, the objectives of which are outlined under Section 4, Project Characteristics above.

- The depth of a new ASR wells could range between 500 and 1,500 feet.
- The average area of disturbance of a well site is anticipated to be half an acre or less.
- The installation of the proposed ASR wells includes the construction of conveyance facilities to convey the supplemental water to the ASR wells and to convey pumped groundwater to end users. Conveyance facilities include pipelines, booster stations, reservoirs and related appurtenances. The length of pipelines is estimated to be about 37,500 lineal feet (LF). The location of possible associated booster stations, reservoirs and related appurtenances are unknown.
- The installation of the proposed ASR wells includes the construction of improvements to wastewater treatment plants if recycled water is injected into an ASR well (described under Wastewater Treatment Facilities below). In the case that recycled water is injected into the Chino Basin, an ASR well would be replaced by one dedicated injection well plus one conventional extraction well.
- The expected location of ASR wells is north of Highway 60 in MZ-1.

PE 7

Under the OBMPU, the objective of PE 7, as outlined under Section 4, Project Characteristics above, includes (1) completing the 2020 update of TDS and nitrate projections to evaluate compliance with maximum benefit salt and nutrient management plan, and, if necessary, based on the outcome, preparing a plan and schedule to implement a salt offset compliance strategy, (2) continuing to implement the maximum-benefit salt and nutrient management plan pursuant to the Basin Plan, and (3) starting in 2025 and every five years thereafter, updating water quality projections to evaluate compliance with the maximum-benefit salt and nutrient management plan. The following proposed well projects would enable the Watermaster to maintain Hydraulic Control as envisioned under the OBMPU are listed below and shown on Exhibit 25.

Expand the Existing Chino Desalter Groundwater Pumping. The OBMPU envisions expanding the existing Chino Desalter capacity by up to 6,000 afy by adding new wells. This will require constructing up to eight wells in the existing desalter wellfield areas (shown on Exhibit 25) to increase pumping up to 6,000 afy to maintain Hydraulic Control and to mitigate reductions in net recharge and Safe Yield caused by the implementation of a future land subsidence management and Storage and Recovery Programs. Well depths could range from 250 to 1,000 feet. The average area of disturbance of a well site is anticipated to be half an acre or less. Additionally, the effort to maintain Hydraulic Control in the future may require the Watermaster to acquire up to five existing wells in in the Chino Creek well field area that, in aggregate, can pump up to 2,000 afy to maintain Hydraulic Control. This effort is anticipated to be ministerial in nature; however, it is possible that any one of the acquired wells may require redevelopment, removal and disposal of existing pumping equipment, installation of new pumping equipment and well head improvements to enable adequate pumping. Up to 65,000 lineal feet of conveyance would be required to connect the new wells to a treatment facility. The new wells also meet the objectives of **PE 8/9**, the objectives of which are outlined under Section 4, Project Characteristics above.

PE 8/9

Through the OBMPU process, the objectives of PEs 8 and 9, as outlined under Section 4, Project Characteristics above, are to:

- Implement, and periodically update, a storage management plan that: (1) is based on the most current information and knowledge of the basin, (2) prevent unauthorized overdraft, (3) prioritizes the use of storage space (storage bands) to meet the needs and requirements of the lands overlying the Chino Basin and of the Parties over the use of storage space to store water for export.
- Support the development and implementation of Storage and Recovery Programs in the Chino Basin that provide defined benefits to the Parties and the basin.

The facilities and/or improvements to existing facilities envisioned under the OBMPU to conduct a Storage and Recovery Program within the SMP are listed below and shown on Exhibit 27.

Aquifer Storage and Recovery (ASR) and Conventional Wells (Part 3). The OBMPU envisions constructing up to 40 new ASR wells and/or 30 new conventional production wells in MZ-2/3 north of Highway 60 to increase pumping and recharge capacity by up to 70,000 afy to implement Storage and Recovery programs. Some of the new conventional pumping wells and ASR wells that will be constructed for PE 2, respectively, may be used for PE 8/9; as such the total number of ASR wells anticipated to be constructed is: 60. Please refer to the discussion under Wells: PE 2 above. The ASR wells also meet the objectives of **PEs 2, 4 and 5**, the objectives of which are outlined under Section 4, Project Characteristics above.

- The depth of a new wells could range between 500 and 1,500 feet.
- The average area of disturbance of a site is anticipated to be half an acre or less.
- ASR well development will require the construction of conveyance and treatment facilities to supply water to the ASR wells for recharge and to convey pumped groundwater to end users. The estimated length of pipelines is estimated to be about 100,000 lineal feet (LF). The location of associated booster station, reservoirs and related appurtenances are unknown. The installation of the proposed ASR wells includes the construction of improvements to wastewater treatment plants if recycled water is injected into an ASR well (described under Wastewater Treatment Facilities below).
- The expected location of ASR wells is north of Highway 60 in MZ-2 and MZ-3.

Replacement and Modification to Existing Wells. The OBMPU envisions constructing replacement wells and or modification to existing wells to mitigate loss of pumping capacity caused by a future Storage and Recovery Program(s). The location of these wells has not yet been identified. For planning purposes, it is anticipated that a maximum number of 5 existing wells may be modified, and a maximum of 5 existing wells will be abandoned, destroyed, and replaced with a new well. Modification of a well could include deepening the well by drilling, lowering the pump, removal of the existing pumping equipment and replacing it with new pumping equipment and other well head improvements. Replacing a well includes the drilling, well completion, installation of new pumping equipment, site and well head improvements and new conveyance facilities.

Conclusion
It is estimated that under the OBMPU a total of 178 wells will be developed to serve the various purposes outlined above. Furthermore, the ASR wells will require construction of conveyance and treatment facilities to supply water to the ASR wells for recharge and to convey pumped groundwater to end users. As such, it is estimated that under the OBMPU a total of 190,000 LF will be required to connect wells to the distribution systems, which is inclusive of each of the three ASR well development projects required above.

Table 5
ASR WELLS PER PROGRAM ELEMENT

PE (Location)	Number of Wells
PE 4 with potential use for PE 2 (MZ 1 north of Hwy 60)	15
PE 8/9 with potential use for PE 2 (MZ 2/3 north of Hwy 60)	40
Additional wells for PE 2 (north of Hwy 60)	5
TOTAL	**60**

5.3 Well Destruction

PE 1
The objective of PE 1 under the OBMPU includes continuing the ongoing monitoring and reporting program and developing and updating an *OBMP Monitoring and Reporting Work Plan*. A part of this objective includes destroying abandoned wells due to the threat they pose to the groundwater supply. In order to accomplish the objectives of PE 1, as outlined under Section 4, Project Characteristics above, the following facilities or actions are required:

Well Destruction. The presence of improperly abandoned wells is a threat to groundwater supply and a physical hazard. Watermaster staff periodically reviews its database, makes appropriate inspections, consults with well owners, maintains a list of abandoned wells in the Chino Basin, and provides this list to the counties for follow-up and enforcement. Watermaster requests owners of abandoned wells to properly destroy their wells pursuant to the DWR Well Standards (Bulletins 74-81 & 74-90). This includes sealing the upper 20 feet with an impervious sealing material (neat cement, sand-cement grout, concrete, or bentonite clay). In areas where the interchange of water between aquifers occurs, impervious material will be placed opposite the confining formations above and below the producing formations for a distance of 10 feet or more. The remainder of the well shall be filled with suitable fill (clay, silt, sand, gravel, crushed stone, native soils, or mixtures of the aforementioned types). In urban areas, additional requirements must be met. These include: 1) A hole shall be excavated around the well casing to a depth of 5 feet below the ground surface and the well casing removed to the bottom of the excavation; 2) The sealing material used for the upper portion of the well shall be allowed to spill over into the excavation to form a cap; and. 3) After the well has been properly filled, including sufficient time for sealing material in the excavation to set, the excavation shall be filled with native soil. Under the OBMPU, Watermaster will continue these efforts, though no specific abandoned wells have been identified to be destroyed at this time.

5.4 Storage and Recharge Facilities

PE 2

Under the OBMPU, the objective of PE 2, as outlined under Section 4, Project Characteristics above, includes the implementation of recharge projects based on need and available resources. The new recharge facilities and/or improvements to existing facilities that may result from the RMPU process as envisioned under the OBMPU are listed below and shown on Exhibit 12. Note that the RMPU process and facility modifications have been evaluated in detail

New Storage Basin: Chino Institute for Men. The OBMPU envisions constructing and operating a new storage basin for stormwater and supplemental waters at the Chino Institute for Men (CIM), which includes the following facilities: a diversion structure that would divert stormwater and dry-weather discharge from Chino Creek to the new storage basin; booster pump stations, pipelines and basins that would convey stormwater and dry-weather discharge from the new storage basin to recharge facilities in the northern part of the Basin; and, pipelines to convey supplemental waters to the storage basin for seasonal storage. The new storage basin at the CIM will have an area between 50 and 100 acres. The proposed new storage basin will require conveyance facilities that include estimated 60,000 lineal feet of pipelines and presently an unknown number, locations and capacities of booster pump stations, basins and related appurtenances. The location of the CIM is depicted on Exhibit 12. The new recharge resulting from this new storage basin also meets the objectives of **PEs 4, 5, and 8/9**, the objectives of which are outlined under Section 4, Project Characteristics above.

Flood Managed Aquifer Recharge. The OBMPU envisions constructing flood managed aquifer recharge (MAR) facilities in the northeast part of basin to recharge supplemental water. This assumes that land in existing agricultural uses can be flooded to achieve managed aquifer recharge. The potential cumulative area of these facilities is about 200 acres, which represents the total agricultural land use area in the northern part of the Chino Basin. Facilities to implement this include diversion structures and conveyance facilities that would convey surface water to the available agricultural land. Conveyance facilities include pipelines, booster stations, basins and related appurtenances. The proposed new MAR facilities will require conveyance facilities that include an estimated 50,000 lineal feet of new pipelines and presently unknown number, locations and capacities of booster pump stations, basins and related appurtenances. The precise location of the proposed new flood MAR facilities is unknown at this time, beyond that they will be located within northern portion of the Chino Basin as shown on Exhibit 12. The new recharge resulting from this new storage basin will meet the objectives of **PEs 5, and 8/9**, the objectives of which are outlined under Section 4, Project Characteristics above.

New Storage Basin: Lower Cucamonga Ponds. The OBMPU envisions constructing and operating a new storage basin at the existing Lower Cucamonga Ponds, which includes the following facilities: construction of dam and reservoir over the current foot print of the Lower Cucamonga ponds and adjacent Cucamonga Creek Channel; and booster pump stations, pipelines and reservoirs to convey stormwater and dry-weather discharges from the new storage basin to recharge facilities in the northern part of the basin. The Lower Cucamonga Ponds are existing detention basins owned by the San Bernardino County Flood Control District. The ponds would be converted into one storage basin to store stormwater and dry-weather discharges, and will encompass an area of about 50 acres. The proposed new storage basin will require conveyance facilities that include an estimated 90,000 lineal feet of new pipeline and presently unknown number, locations and capacities of booster pump stations, reservoirs and related appurtenances. The location of the Lower Cucamonga Ponds is depicted on Exhibit 12. The new recharge resulting from this new storage basin will meet the objectives of **PEs 5 and 8/9**, the objectives of which are outlined under Section 4, Project Characteristics above.

New Storage Basin: Mills Wetlands. The OBMPU envisions constructing and operating a new storage basin at the existing Mills Wetlands, which includes the following components: expansion of the storage capacity of the existing Mills wetland by excavation of the bottom and other grading improvements to expand storage capacity; improvements to existing diversion facilities and or the construction of new diversion structures to divert stormwater and dry-weather discharge from Cucamonga Creek to the new storage basin; and, booster pump stations, pipelines and storage basins to convey stormwater and dry-weather discharges from the new basin to recharge facilities in the northern part of the basin. The Mills Wetlands are existing artificial wetlands used to treat Cucamonga Creek discharge. The wetlands would be converted into a storage basin to store stormwater and dry-weather discharges. It has an area of about 30 acres. The proposed new storage basin will require conveyance facilities that include an estimated 30,000 lineal feet of new pipelines and presently unknown number, locations and capacities of booster pump stations, reservoirs and related appurtenances. The location of the Mills Wetlands is depicted on Exhibit 12. The new recharge resulting from this new storage basin will meet the objectives of **PEs 5 and 8/9**, the objectives of which are outlined under Section 4, Project Characteristics above.

New Storage Basin: Riverside Basin. The OBMPU envisions constructing and operating a new storage basin at the existing Riverside Basin, which includes the following components: expansion of the storage capacity of the existing Riverside Basin by excavation of the bottom and other grading improvements to expand storage capacity and create conservation storage; and booster pump stations, pipelines and storage basins to convey stormwater and dry-weather discharges from the new storage basin to recharge facilities in the northern part of the basin. The Riverside Basin is an existing detention basin owned by the San Bernardino County Flood Control District. The basin would be converted into a multipurpose facility that would maintain its flood control function and temporarily store stormwater and dry-weather discharges. It has an area of about 60 acres. The proposed new storage basin will require conveyance facilities that include an estimated 5,000 lineal feet of pipelines specific to the Riverside Basin, and presently unknown number, locations and capacities of booster pump stations, reservoirs and related appurtenances. The location of the Riverside Basin is depicted on Exhibit 12. The new recharge resulting from this new storage basin will meet the objectives of **PEs 5 and 8/9**, the objectives of which are outlined under Section 4, Project Characteristics above.

New Storage Basin: Vulcan Basin. The OBMPU envisions constructing and operating a new storage basin for stormwater and supplemental waters at the existing Vulcan Basin, which includes the following components: facilities to divert stormwater and dry-weather flow from the West Fontana Channel and surrounding urban areas to the new storage basin; booster pump stations, pipelines, reservoirs and minor appurtenances to convey supplemental water to the Basin; grading improvements within the Basin to expand the storage capacity and to regulate stored water; booster pump stations, pipelines, reservoirs and minor appurtenances to convey stored water to recharge facilities in the northern part of the basin, the RP3 recharge facilities and to IEUA recycled water system for reuse. The Vulcan Basin is an existing facility formerly used as a sand and gravel mine. It has an area of about 60 acres. The proposed new storage basin will require conveyance facilities that include an estimated 20,000 lineal feet of pipelines and presently unknown number, locations and capacities of booster pump stations, reservoirs and related appurtenances. The location of the Vulcan Basin is depicted on Exhibit 12. The new recharge resulting from this new storage basin will meet the objectives of **PEs 5 and 8/9**, the objectives of which are outlined under Section 4, Project Characteristics above.

Modifications to an Existing Reservoir: Jurupa Basin. The OBMPU envisions constructing improvements at the Jurupa Basin that include demolition of existing internal berms, constructing new internal berms, grading improvements to improve internal hydraulics within the basin, removing fine-grained materials from the Jurupa Basin floor to improve its infiltration rate and increase recharge capacity, and improvements at the Jurupa pump station intake that include the construction of trash racks or their functional equivalent and access to remove trash and debris from the pump intake structure. The location of the Jurupa Basin is depicted on Exhibit 12. The new recharge resulting from this new storage basin will meet the objectives of **PEs 2, 5 and 8/9**, the objectives of which are outlined under Section 4, Project Characteristics above.

New Storage Basin: Confluence Project. The OBMPU envisions constructing and operating a new storage basin at the confluence of San Antonio and Chino Creeks (proposed Confluence Project), which includes the following components: two diversion structures with rubber dams and pumps to divert stormwater and dry-weather flow from of San Antonio and Chino Creeks to the new storage basin; and booster pump stations, pipelines, reservoirs and minor appurtenances to convey stormwater and dry-weather discharges from the new storage basin to the Montclair spreading basins in the northern part of the basin. The Confluence Project will have an area of about 10 acres and a depth of about 35 feet, which will result in about 200,000 cubic yards of material removal, with the goal of balancing the cut and fill to minimize material export. The proposed Confluence Project will require conveyance facilities that include an estimated 35,000 lineal feet of pipelines and presently unknown number and locations of booster pump stations, reservoirs and related appurtenances. The new recharge resulting from this Confluence Project meet the objectives of **PEs 2, 5 and 8/9**, the objectives of which are outlined under Section 4, Project Characteristics above.

MS4 Compliant Projects. The OBMPU envisions collaborating with the MS4 permittees (typically cities and counties) to ensure MS4-compliance projects prioritize recharge. This will result in the construction of new MS4-compliance facilities that increase recharge in the Chino Basin. The Watermaster does not directly develop any MS4-compliance projects; these projects will occur as development within the overall Chino Basin area occurs. The MS4 compliance initiative also meets the objectives of **PEs 2, 4 and 8/9**, the objectives of which are outlined under Section 4, Project Characteristics above.

Conclusion
The conveyance facilities required to increase recharge in the Chino Basin include an estimated 240,000 LF of pipelines and presently unknown booster pump stations, reservoirs and minor appurtenances whose locations and capacities to achieve the OBMPU goals are presently unknown.

5.5 Water Treatment Plants

PE 2
Under the OBMPU, the objective of PE 2, as outlined under Section 4, Project Characteristics above, includes the implementation of recharge projects based on need and available resources. The new recharge facilities and/or improvements to existing facilities involving wastewater

treatment plants that may result from the RMPU process as envisioned under the OBMPU are listed below and shown on Exhibit 12. Please note that IEUA's 2017 FMP PEIR included extensive evaluations of future modifications to its four Water Reclamation Plants (WRPs: RP-1, RP-2, RP-4 and Carbon Canyon). The findings of this three-year old PEIR will be extensively referenced in this document.

Modifications to an Existing Imported Water Treatment Facility: Water Facilities Authority Agua de Lejos Treatment Plant (Part 1). The OBMPU envisions constructing improvements to the Water Facilities Authority (WFA) Agua de Lejos Treatment Plant to remove some or all its solids handling limitations, and envisions other improvements to increase its capacity to its original design capacity, thereby increasing in-lieu recharge capacity. The specific improvements needed to increase the capacity of the plan are currently unknown. Please refer to Water Treatment Plants: PE 4 below for further details on proposed improvements to the WFA Agua de Lejos Treatment Plant. The WFA modifications also meet the objectives of **PEs 4, 5 and 8/9**, the objectives of which are outlined under Section 4, Project Characteristics above.

PE 4
As outlined under Section 4, Project Characteristics above, the goal of PE 4 is to develop and implement comprehensive groundwater management plan for Management Zone 1 that will characterize land subsidence spatially and temporarily, identify its causes, and, where appropriate, develop and implement a program to manage it. Under the OBMPU, the following project(s) involving modifications to water treatment facilities are envisioned to address land subsidence are listed below and are shown on Exhibit 14.

Modifications to an Existing Imported Water Treatment Facilities: Water Facilities Authority Agua de Lejos Treatment Plant (Part 2). The OBMPU envisions constructing improvements to the WFA Agua de Lejos Treatment Plant to increase its capacity by up to 25,000 afy and also envisions an increase in the use of imported water purchased from Metropolitan Water District of Southern California by up to 25,000 afy. The specific improvements needed to increase the capacity of the plan are currently unknown. Some of the surface water supplied could be obtained through Three Valleys Municipal Water District (TVMWD) and its Miramar Treatment Plant. As stated above under Wastewater Treatment Plants: PE 2, the WFA modifications also meet the objectives of **PEs 2, 5 and 8/9**, the objectives of which are outlined under Section 4, Project Characteristics above.

PE 7
Under the OBMPU, the objective of PE 7, as outlined under Section 4, Project Characteristics above, includes (1) completing the 2020 update of TDS and nitrate projections to evaluate compliance with maximum benefit salt and nutrient management plan, and, if necessary, based on the outcome, preparing a plan and schedule to implement a salt offset compliance strategy, (2) continuing to implement the maximum-benefit salt and nutrient management plan pursuant to the Basin Plan (Regional Board's or other such plan), and (3) starting in 2025 and every five years thereafter, updating water quality projections to evaluate compliance with the maximum-benefit salt and nutrient management plan. If compliance with the maximum benefit limitations were to become an issue, and/or if changes in basin management and operation as described herein impact the ability to maintain Hydraulic Control, the facilities and/or improvements that may need to be implemented are listed below and shown on Exhibit 25.

Upgrade Existing Recycled Water Treatment Plant(s). The OBMPU envisions constructing new treatment trains at one or more IEUA recycled water treatment plants (RP-1, RP-4, RP-5, CCWRF) to reduce the TDS concentration of recycled water to levels that ensure compliance with

IEUA and Watermaster's recycled water permits. The area disturbed during construction of the new treatment train capacity expansion would be limited to the disturbed areas at IEUA's existing recycled water treatment plants. Please note that IEUA's 2017 FMP PEIR included extensive evaluations of future modifications to its four Water Reclamation Plants (WRPs: RP-1, RP-2, RP-4 and Carbon Canyon). The findings of this three-year old PEIR will be extensively referenced in this document.

5.6 <u>Desalters and Advanced Water Treatment Facilities</u>

PE 4

As outlined under Section 4, Project Characteristics above, the goal of PE 4 is to develop and implement comprehensive groundwater management plan for management zone 1 that will characterize land subsidence spatially and temporarily, identify its causes, and, where appropriate, develop and implement a program to manage it. Under the OBMPU, the following project(s) involving modifications to water management facilities are envisioned to address land subsidence are listed below and are shown on Exhibit 14.

Modifications to the Chino Desalters. The OBMPU envisions the possible expansion of the existing Chino Desalter capacity by up to 2,000 afy by adding new wells in the Chino Creek wellfield area and expanding the Chino-I and/or Chino-II Desalter treatment capacity. The location of the Chino Desalters is shown on Exhibit 14. The new wells required to expand the Chino Desalters are discussed under Wells: PE 7, above. Additionally, the ultimate expansion of the existing Chino Desalters is discussed under Desalters and Advanced Water Treatment Facilities: PE 7, below.

PE 5

Under the OBMPU, the objective of PE 5, as outlined under Section 4, Project Characteristics above, maximizing recycled water reuse and establishing or expanding future recycled water planning efforts to maximize the reuse of all available sources of recycled water. The following proposed water treatment facilities would maximize recycled water reuse as envisioned under the OBMPU are listed below and shown on Exhibit 16.

New Advanced Water Treatment Plant. The OBMPU envisions constructing an advanced water treatment plant. Advanced water treatment refers to the following wastewater treatment processes: RO, membrane filtration, or functionally equivalent processes, and potentially ultraviolet (UV) disinfection. The area expected to be disturbed by the construction and operation of the plant is 10 acres. The location of this treatment plant is currently unknown; however, it could be collocated at an existing IEUA treatment plant. Please note that IEUA's 2017 FMP PEIR included extensive evaluations of future modifications to its four Water Reclamation Plants (WRPs: RP-1, RP-2, RP-4 and Carbon Canyon). The findings of this three-year old PEIR will be extensively referenced in this document.

The water produced by the new treatment plant could be used for direct potable reuse (DPR) and or indirect potable reuse (IPR). In either case, conveyance facilities will be required to convey the treatment plant product water to either use. These conveyance facilities include pipelines, booster pump stations, reservoirs and minor appurtenances whose number, locations and capacities are presently unknown. However, it is anticipated that the pipelines will be located below ground and within existing road rights-of-ways. The new advanced treatment plant also meets the objectives of **PE 7**, the objectives of which are outlined under Section 4, Project Characteristics above.

PE 7
Under the OBMPU, the objective of PE 7, as outlined under Section 4, Project Characteristics above, includes include (1) completing the 2020 update of TDS and nitrate projections to evaluate compliance with maximum benefit salt and nutrient management plan, and, if necessary, based on the outcome, preparing a plan and schedule to implement a salt offset compliance strategy, (2) continuing to implement the maximum-benefit salt and nutrient management plan pursuant to the Basin Plan, and (3) starting in 2025 and every five years thereafter, updating water quality projections to evaluate compliance with the maximum-benefit salt and nutrient management plan. The following proposed water treatment facilities or modifications to existing facilities would enable the Watermaster to maintain Hydraulic Control as envisioned under the OBMPU are listed below and shown on Exhibit 25.

Expand the Existing Chino Desalter. The OBMPU envisions expanding the existing Chino Desalter capacity by up to 6,000 afy by adding new wells and either expanding the Chino-I and/or Chino-II treatment capacity or constructing a new treatment facility and product conveyance facilities. The area disturbed during construction of the treatment plant capacity expansion would be limited to the disturbed areas at the existing Chino Desalter treatment plant sites. This effort would require developing 6,000 afy of new groundwater supply. The development of the wells required to expand the Chino Desalters are outlined under Wells: PE 7 above. Conveyance facilities will be required to convey the treatment plant product water to its end potable use. These conveyance facilities include pipelines, booster pump stations, reservoirs and minor appurtenances whose number, locations and capacities are presently unknown. The expansion of the Chino Desalters or construction of new functionally equivalent facilities could be used to mitigate the loss of net recharge and Safe Yield caused by a Storage and Recovery Program, which would meet the objectives of **PE 8/9**, the objectives of which are outlined under Section 4, Project Characteristics above.

Brine Management Facilities. The OBMPU envisions constructing brine management facilities for the expanded desalting described above that result in no net increase in brine disposal. The specific brine management facilities are currently unknown.

5.7 Recycled and Potable Water Distribution/Conveyance

PE 5
Under the OBMPU, the objectives of PE 5, as outlined under Section 4, Project Characteristics above, are maximizing recycled water reuse and establishing or expanding future recycled water planning efforts to maximize the reuse of all available sources of recycled water. The proposed recycled water distribution facilities that maximize recycled water reuse as envisioned under the OBMPU are listed below and shown on Exhibit 16, while the facilities and/or improvements to existing facilities to improve water reliability envisioned under the OBMPU are listed below and shown on Exhibit 17.

Indirect Potable Reuse Conveyance Improvements. The OBMPU envisions expanding the recycled water distribution system for indirect potable reuse by constructing conveyance facilities that include pipelines, booster pump stations, reservoirs and minor appurtenances. The general location of these facilities is shown in Figure 16. The number, location and capacities of the proposed conveyance facility improvements are presently unknown; however, it is anticipated that the up to 50,000 lineal feet of pipeline could be constructed underground and within existing road rights-of-ways. The proposed recycled water *conveyance improvements* also meet the objectives of **PE 8/9**, the objectives of which are outlined under Section 4, Project Characteristics above.

East/West Regional Pipeline. The OBMPU envisions constructing an east to west 75,000-foot regional pipeline across the northern part of the Chino Basin to enable the efficient conveyance and distribution of supplemental and basin waters to Chino Basin water users; and or the construction of improvements to existing conveyance facilities to accomplish the same. This pipeline project will require ancillary facilities that include booster pump stations, reservoirs and related appurtenances. The precise locations, number and capacities of the proposed conveyance facility improvements are unknown, though the alignment envisioned under the OBMPU is shown approximately on Exhibit 17. It is anticipated that the proposed pipeline will be constructed underground and within existing road rights-of-ways. The proposed regional pipeline also meets the objectives of **PE 8/9**, the objectives of which are outlined under Section 4, Project Characteristics above.

North/South Regional Pipeline. The OBMPU envisions constructing a north-to-south 45,000-foot regional pipeline across the eastern part of the Chino Basin to enable the efficient conveyance and distribution of supplemental and basin waters to Chino Basin water users; and or the construction of improvements to existing conveyance facilities to accomplish the same. This pipeline project will require ancillary facilities that include booster pump stations, reservoirs and related appurtenances. The precise locations, number and capacities of the proposed conveyance facility improvements are unknown, though the alignment envisioned under the OBMPU is shown approximately on Exhibit 17. It is anticipated that the proposed pipeline will be constructed underground and within existing road rights-of-ways. The proposed regional pipeline also meets the objectives of **PE 8/9**, the objectives of which are outlined under Section 4, Project Characteristics above.

PE 6

Under the OBMPU, the objective of PE 6, as outlined under Section 4, Project Characteristics above, is to perform routine and coordinated water quality monitoring to characterize water quality in the Chino Basin so that there is adequate information to ensure that contamination sources are being addressed by water quality regulators and to help address compliance with new and increasingly stringent drinking water regulations for emerging contaminants established by the DDW. The following proposed groundwater treatment conveyance facilities would address the contaminants of concern within the Chino Basin based on the recommendations of the *Groundwater Quality Management Plan.* The facilities envisioned under the OBMPU are listed below. Exhibits 18 through 21 show the most current characterization of regulated drinking water contaminants in the Chino Basin. Exhibit 18 shows the locations of active municipal supply wells and symbolizes them based on the number of regulated drinking water contaminants that have been detected in exceedance of their respective primary maximum contaminant levels (MCLs).

Groundwater Treatment Conveyance. The OBMPU envisions constructing conveyance facilities to convey the untreated groundwater to the treatment facilities and to convey treated water from the treatment facilities to water users. The precise location, number and capacities of the proposed conveyance systems is presently unknown; however, it is anticipated that the pipelines will be constructed underground and within existing road rights-of-ways. It is anticipated that the treated conveyance systems would be located in proximity to the municipal wells shown Exhibit 18 that have experienced exceedances of DDW MCLs. The construction of new groundwater treatment conveyance facilities has the potential to mitigate the effects of Storage and Recovery Program on the remediation projects, which would meet the objectives of **PE 8/9**, the objectives of which are outlined under Section 4, Project Characteristics above. Additionally, the construction of new groundwater treatment conveyance facilities meets the objectives of **PE 5**, the objectives of which are outlined under Section 4, Project Characteristics above.

Conclusion
Approximately 120,000 LF of pipelines and associated conveyance facilities improvements are required to improve the recycled and potable water distribution systems to achieve the OBMPU goals. And, about 120,000 LF of pipelines and associated conveyance facilities improvements are required to supply groundwater treatment facilities to achieve the OBMPU goals.

5.8 Surplus and Supplemental Water Supply Acquisition

PE 5
Under the OBMPU, the objectives of PE 5, as outlined under Section 4, Project Characteristics above, are maximizing recycled water reuse and establishing or expanding future recycled water planning efforts to maximize the reuse of all available sources of recycled water. The following proposed recycled water facility improvements that maximize recycled water reuse are listed below and shown on Exhibit 16. The facilities and/or improvements to existing facilities to improve water reliability envisioned under the OBMPU are listed below and shown on Exhibit 17.

Imported recycled water facilities. The OBMPU envisions acquiring surplus recycled water supplies from non-IEUA sources and constructing conveyance facilities to import the recycled water. These conveyance facilities include pipelines, booster pump stations, reservoirs and minor appurtenances whose locations and capacities are presently unknown. However, it is anticipated that the pipelines will be located below ground and within existing road rights-of-ways. The proposed acquisition and importation of surplus recycled water supplies also meets the objectives of **PE 8/9**, the objectives of which are outlined under Section 4, Project Characteristics above.

Constructing conveyance facilities to enable the distribution of future imported surface water and groundwater from nearby streams and groundwater basins. This may require new conveyance facilities including pipelines, booster pump stations, reservoirs and related appurtenances whose number, locations and capacities are presently unknown. It is anticipated that the pipelines will be constructed underground and within existing road rights-of-ways.

Conclusion
The conveyance facilities required to import non-IEUA recycled water include pipelines, booster pump stations, reservoirs and related appurtenances whose number, locations, and capacities to achieve the OBMPU goals are presently unknown.

5.9 Groundwater Treatment Facilities

PE 6
Under the OBMPU, the objective of PE 6, as outlined under Section 4, Project Characteristics above, is to perform routine and coordinated water quality monitoring to characterize water quality in the Chino Basin so that there is adequate information to ensure that contamination sources are being addressed by water quality regulators and to help address compliance with new and increasingly stringent drinking water regulations for emerging contaminants established by the DDW. The following proposed groundwater treatment facilities would address the contaminants of concern within the Chino Basin based on the recommendations of the *Groundwater Quality Management Plan,* as envisioned under the OBMPU are listed below. Exhibits 18 through 21 show the most current characterization of regulated drinking water contaminants in the Chino Basin. Exhibit 18 shows the locations of active municipal supply wells and symbolizes them based on the number of regulated drinking water contaminants that have been detected in exceedance of their respective primary MCLs.

Groundwater Treatment at Well Sites. The OBMPU envisions constructing water treatment facilities at well sites or at sites near to wells to treat groundwater to meet drinking water standards for local use. The area expected to be disturbed by the construction and operation of the treatment facilities would be limited to existing well sites if the plant is located at an existing well site; and will range from about 0.5 acres to 2 acres per facility for new treatment facilities located near a well site. New pipelines, booster pumps, reservoirs and related appurtenances will be required to convey groundwater to each treatment plant that is not collocated with a well. The precise number, locations and capacities of the proposed new water treatment plants, pipelines, booster pumps, reservoirs and related appurtenances are presently unknown. However, it is anticipated that for off-wellsite treatment plants, the pipelines will be constructed underground and within existing road rights-of-ways. The length of pipelines to convey groundwater to an off-wellsite treatment plant is expected to range between 2,500 to 10,000 LF, connecting one to four wells to the treatment plant. It is assumed that the groundwater treatment facilities would be located at or near wells shown in on Exhibit 18 where the water quality in water produced at those wells currently exceed drinking water MCLs. The construction of water treatment facilities at well sites or at sites near to wells to treat groundwater has the potential to mitigate the effects of Storage and Recovery Programs on the remediation projects, which would meet the objectives of **PE 8/9**, the objectives of which are outlined under Section 4, Project Characteristics above. Additionally, the construction of groundwater treatment facilities meets the objectives of **PE 5**, the objectives of which are outlined under Section 4, Project Characteristics above.

Regional Groundwater Treatment. The OBMPU envisions constructing regional water treatment facilities that treat groundwater from multiple wells to meet drinking water standards for local use and/or export. The area expected to be disturbed by the construction and operation of the treatment facilities is expected to be less than 20 acres per facility. New pipelines, booster pumps, reservoirs and related appurtenances will be required to convey groundwater to each treatment plant. The precise number, locations and capacities of the proposed new water treatment plants are presently unknown. However, it is anticipated that the pipelines will be constructed underground and within existing road rights-of-ways. The length of pipelines to convey groundwater the proposed treatment plants is expected to range between 5,000 to 50,000 LF, connecting up to ten wells to the treatment plant. It is assumed that the regional groundwater treatment facilities will be located in close proximity to wells shown in on Exhibit 18 where the water quality in water produced at those wells currently exceed drinking water MCLs. The construction of regional water treatment facilities has the potential to mitigate the effects of Storage and Recovery Program on the remediation projects, which would meet the objectives of **PE 8/9**, the objectives of which are outlined under Section 4, Project Characteristics above. Additionally, the construction of regional groundwater treatment facilities meets the objectives of **PE 5**, the objectives of which are outlined under Section 4, Project Characteristics above.

Improve Existing Groundwater Treatment Facilities. The OBMPU envisions constructing improvements at existing treatment facilities to enable them to continue to treat contaminated groundwater to drinking water standards for local use. These treatment plants treat contaminants known at the time they were designed and constructed. New treatment processes may need to be added to these existing plants with current and future drinking water regulations. The capacities of these treatment improvements are presently unknown. The treatment processes that could be used include granulated activated carbon, air stripping, ion exchange, reverse osmosis, biological, and other processes. The improvement of existing groundwater treatment facilities has the potential to mitigate the effects of Storage and Recovery Programs on the remediation projects, which would meet the objectives of **PE 8/9**, the objectives of which are outlined under Section 4, Project Characteristics above. Additionally, the construction of improvements at existing treatment facilities meets the objectives of **PE 5**, the objectives of which are outlined under Section 4, Project Characteristics above.

5.10 Biological Monitoring

PE 1

The objective of PE 1 under the OBMPU includes continuing the ongoing monitoring and reporting program and developing and updating an *OBMP Monitoring and Reporting Work Plan*. In order to accomplish the objectives of PE 1, as outlined under Section 4, Project Characteristics above, the following projects are required:

PBHSP Biological Monitoring. Watermaster's biological monitoring program is conducted pursuant to the adaptive monitoring program (AMP) for the Prado Basin Habitat Sustainability Program (PBHSP). The objective of the PBHSP is to ensure that the groundwater-dependent ecosystem in Prado Basin will not incur unforeseeable significant adverse impacts due to implementation of the Peace II Agreement. The monitoring program produces time series data and information on the extent and quality of the riparian habitat in the Prado Basin over a historical period that includes both pre- and post-Peace II implementation. Two types of monitoring and assessment are performed: regional and site-specific. Regional monitoring and assessment of the riparian habitat is performed by mapping the extent and quality of riparian habitat over time using multi-spectral remote-sensing data and air photos. Site-specific monitoring performed in the Prado Basin includes field vegetation surveys and seasonal ground-based photo monitoring. Under the OBMPU, Watermaster will continue these efforts.

6. SUMMARY OF OPERATIONAL SCENARIOS

In order to evaluate the possible operational scenarios for the equipment or facilities described in the preceding section, the following future modes of operation (activities) are provided for evaluation. These are representative scenarios that describe a range of plausible future operations and activities. They are not intended to be exhaustive but they represent future operations based on the past activities carried out in the Chino Basin to implement the original OBMP Program Elements.

6.1 Wells

Groundwater-level monitoring. Wells will be visited by a field technician on a monthly to quarterly frequency. There is negligible energy consumption in obtaining groundwater levels from a monitoring well.

Groundwater-quality monitoring. Wells will be visited by a field technician on a monthly to quarterly frequency. There is negligible energy consumption in obtaining groundwater quality samples from a monitoring well.

Aquifer Storage and Recovery (ASR) Wells (Part 1). The operation of these wells is discussed in under PE4 (Part 2) and PE8/9 (Part 3). See below for operational discussion.

MZ 1 Well Relocation. New conventional pumping wells in MZ-2/3 are assumed be operated 80 percent of the time for a maximum of 25,000 afy at a pumping rate of 2,300 gpm. Based on the depth to water in this area, energy consumption would be about 550 kWh per af.

Aquifer Storage and Recovery (ASR) Wells (Part 2). ASR wells under PE 4 will be operated seasonally, and pumping is expected to occur during the summer at an assumed utilization rate of 80 percent, while recharge is expected for the remainder of the year at an assumed utilization rate of 70 percent. The wells will pump up to 12,500 afy at an assumed rate of 1,200 gpm. Recharge for ASR wells (or injection wells) will occur by gravity flow and will require no pumping to place the water in the aquifer. Energy consumption is expected to range between 300 and 650 kWh per af.

Expand the Existing Chino Desalter through Expanded Well Pumping. New conventional pumping wells in the Chino Desalter area are assumed be operated 80 percent of the time for a maximum of 6,000 afy at pumping rates of ranging from 400 to 2,300 gpm. Energy consumption is expected to range between 300 and 550 kWh per af.

Aquifer Storage and Recovery (ASR) and Conventional Wells (Part 3) Incorporated into Watermaster Storage Management Plan. Based on the 2018 Storage Framework Investigation (SFI) (WEI, 2018) and the 2020 Storage Management Plan (SMP) (WEI, 2019), the Chino Basin Parties will utilize up to 720,000 af of groundwater storage for their individual conjunctive-use activities. Metropolitan Water District of Southern California (Metropolitan) currently has a storage agreement that allows them to operate a Storage and Recovery Program (Dry-Year Yield Program or DYYP) in the Chino Basin through 2028. Collectively, the Chino Basin Parties and Metropolitan will use up to 800,000 af through 2030 and the amount of storage space used by Chino Basin Parties for their individual conjunctive-use activities is projected to gradually decline for several decades thereafter. The 2018 SFI analyzed the basin response from the Chino Basin Parties use of storage space up to 700,000 af and the conjunctive-use by Storage and Recovery Programs from 700,000 af to 1,000,000 af (including Metropolitan's DYYP). Based on the work done in the 2018 SFI, the storage space was divided into two bands: First Managed Storage Band (FMSB) of 800,000 af for use by the Chino Basin Parties and Metropolitan and 200,000 af of storage space between 800,000 af and 1,000,000 af for use by future Storage and Recovery Programs. The 2020 SMP requires that the facilities used to conduct Storage and Recovery programs using the storage space between 800,000 af and 1,000,000 to be located in the Northern parts of MZ2 and MZ3 as shown in Exhibit 27.

The facilities required by the Chino Basin Parties and Metropolitan to conduct their conjunctive-use activities within the FMSB currently exist and they are in operation today. The facilities required to conduct Storage and Recovery Programs using the storage space between 800,000 af and 1,000,000 af consist of a combination of existing facilities (spreading basins, ASR wells and conventional wells) and new facilities. The table below summarizes the range in existing and new facilities required to implement Storage and Recovery Programs that operate in the storage band between 800,000 af and 1,000,000 af. For purposes of this EIR and consistent with the assumptions in the 2018 SFI, the operational cycle of Storage and Recovery Programs consists of four put years, three hold years and three take years.

Table 6
RANGE OF EXISTING AND NEW FACILITIES REQUIRED TO IMPLEMENT STORAGE AND RECOVERY PROGRAMS

	2018 SFI			OBMPU EIR		
	Put and takes (afy)	Number of operating wells	New energy require-ment (kwh)	Put and takes (afy)	Number of operating wells	New energy require-ment (kwh)
Annual put	50,000			50,000		
Existing spreading basin capacity used	29,280		0	0		0
Existing ASR well capacity used	2,740		219,200	0		0
Total existing put capacity used	32,020		219,200	0		0
New ASR well capacity used	17,980	9	1,438,400	50,000	24	4,000,000
Annual take	66,666			66,666		
Take through existing wells	16,667		10,173,066	0		0
Take through new ASR wells	49,999	8	30,517,977	50,000	0	30,518,587
Take through new conventional wells	0	0	0	16,666	6	10,172,455
Total new wells		17			30	
Total energy requirement			42,547,843			44,691,043

For purposes of this EIR, it is assumed that the entire put will be accomplished with new ASR wells and the take will be accomplished with a combination of new ASR and new conventional wells. Based on the 2018 SFI, the ASR wells were assumed to have recharge and pumping capacities of 1,800 gpm and 2,300 gpm, respectively.

- During put years the ASR wells would be utilized 70 percent of the time. The energy required to conduct recharge through ASR would occur at treatment plants where imported water is treated prior to injection. The energy required to treat imported water prior to injection is estimated to be about 80 kwh per af based on the treatment energy requirements at the Lloyd Michael and Sand Hill water treatment plant. The annual energy requirement for a put year of 50,000 afy is estimated to be 4,000,000 kwh.
- During take periods, the ASR and conventional wells would be utilized 80 percent of the time. The energy required to pump the groundwater to service pressure is estimated to be about 600 kwh per af. The annual energy requirement for a take year of 66,670 afy is estimated to be 45,000,000 kwh.

Replacement and Modification to Existing Wells. New or modified conventional pumping wells in the Chino Desalter area are assumed be operated (utilization rate) 80 percent of the time for a maximum of 6,000 afy at a pumping rate of ranging from 400 to 2,300 gpm. Energy consumption is expected to range between 300 and 550 kWh per af.

6.2 Monitoring Devices

Groundwater-production monitoring. Agricultural pumping wells will be visited by a field technician on a monthly to quarterly frequency to read up to 300 in-line flow meters. There is negligible energy consumption for accessing and reading the meter.

Surface Water and Climate Monitoring. Flow and stage measuring equipment and meteorological monitoring equipment will be visited by a field technician on a monthly to quarterly frequency to download data and service the equipment. The monitoring equipment will likely be powered by a solar panel and connected to a telemetry system.

Ground-level monitoring. Wells with extensometers will be visited by a field technician on a monthly to quarterly frequency to download data and service the equipment. The extensometer will likely be powered by a solar panel and connected to a telemetry system.

6.3 Well Destruction

Well Destruction. Watermaster requests owners of abandoned wells to properly destroy their wells pursuant to the DWR Well Standards (Bulletins 74-81 & 74-90). This includes sealing the upper 20 feet with an impervious sealing material (neat cement, sand-cement grout, concrete, or bentonite clay). In areas where the interchange of water between aquifers occurs, impervious material will be placed opposite the confining formations above and below the producing formations for a distance of 10 feet or more. The remainder of the well shall be filled with suitable fill (clay, silt, sand, gravel, crushed stone, native soils, or mixtures of the aforementioned types). In urban areas, additional requirements must be met. These include: 1) A hole shall be excavated around the well casing to a depth of 5 feet below the ground surface and the well casing removed to the bottom of the excavation; 2) The sealing material used for the upper portion of the well shall be allowed to spill over into the excavation to form a cap; and 3) After the well has been properly filled, including sufficient time for sealing material in the excavation to set, the excavation shall be filled with native soil.

6.4 Storage and Recharge Facilities

New Storage Basin: Chino Institute for Men, Lower Cucamonga Ponds, Mills Wetlands, Riverside Basin, Vulcan Basin, Confluence Project. Operations at these storage reservoirs consist of diversion and capture of stormwater and dry-weather discharges, pumping the stored water to recharge basins upstream of these storage reservoirs and maintenance of storage and conveyance facilities. The energy required to pump stored water to recharge facilities or for other uses is presently unknown. Basin maintenance is expected to occur every two to three years for each storage basin, consisting of removal of debris and trash that’s diverted with the stormwater and dry-weather discharges, removal of vegetation and vector management. Other operations may include diversion, storage and recharge of imported water and pumping of recycled water from wastewater treatment plants owned by IEUA to these storage reservoirs.

Flood Managed Aquifer Recharge. Operations at these facilities consist of diversion and capture of supplemental water to flood existing agricultural land. Facility maintenance is expected to occur every two to three years, consisting of minor grading activities to remove fine-grained sediments, repair berms and hydraulic structures and removal of nuisance vegetation, debris and trash.

Modifications to an Existing Reservoir: Jurupa Basin. This Jurupa Basin improvements in this project will change the operation of the basin from a temporary storage basin to a temporary storage and recharge reservoir. This will result in increased diversions from San Sevaine Creek, increased pumping from the basin (which basin) to the RP3 recharge basin and increased recharge in the Jurupa Basin. Basin maintenance is expected to occur every two to three years, consisting of grading activities to remove fine-grained sediments, repair berms and hydraulic structures, removal of debris and trash that's diverted with the stormwater and dry-weather discharges, removal of vegetation and vector management.

MS4 Compliant Projects. Operations of these MS4 compliant projects consists of diversion and capture of on-site stormwater and dry-weather discharges for treatment and recharge. Maintenance is expected to occur annually and will include activities specific to each facility type and could include: removal of debris and trash and replacement of components (e.g., filters)

6.5 Imported Water Treatment Plants

Modifications to an Existing Imported Water Treatment Facilities: Water Facilities Authority Agua de Lejos Treatment Plant (Parts 1 and 2). This project consists of expanding the existing solids handling capacity at the Water Facilities Authority Agua de Lejos Treatment Plant from 20 mgd in wintertime 40 mgd in summertime, to a constant capacity of 81 mgd. This will result in constantly operating the plant at two to four times its current capacity.

6.6 Wastewater Treatment Plants

Upgrade Existing Recycled Water Treatment Plant(s). Upgrades to the existing recycled water treatment plants will result in the operation of new treatment trains at one or more IEUA recycled water treatment plants.

6.7 Desalters and Advanced Water Treatment Facilities

Modifications to the Chino Desalters/ Expand the Existing Chino Desalter. Desalter groundwater well production will increase by 2,000 to 6,000 afy. This will result in upgrades to the existing Chino Desalters to increase their combined capacities by about 6 mgd or operation of a new 6 mgd desalter facility. Upgrades to the existing Chino Desalters or a new desalter facility will result in the operation of an additional 6 mgd of treatment through RO and pumping the additional product water into the distribution systems.

New Advanced Water Treatment Plant. Operations consist of running and maintaining the treatment plant. Operations will consist of treating up to 20 mgd of waste water through RO and microfiltration or functionally equivalent processes, and potentially ultraviolet (UV) disinfection. The plant will run 90 percent of the time. The energy requirements and chemicals required to operate the plants are presently unknown. Waste generation is presently unknown.

Brine Management Facilities. The OBMPU envisions constructing brine management facilities that result in no net increase in brine disposal. The specific brine management facilities are currently unknown.

6.8 Recycled and Potable Water Distribution/Conveyance

Once a pipeline is installed, operations do not require any visits unless unforeseen circumstances arise that would require maintenance or repair of the pipelines. In the event of routine maintenance one vehicle trip per maintenance event would be required. Booster pump stations that are incorporated into the project will be operated to convey the water, but the capacity and amounts of water pumped is currently unknown.

6.9 Surplus and Supplemental Water Supply Acquisition

Once the pipeline is installed to enable future conveyance of recycled water, imported surface water and groundwater from nearby streams and groundwater basins, to the Chino Basin, operations do not require any visits unless unforeseen circumstances arise that would require maintenance or repair of the pipelines. In the event of routine maintenance one vehicle trip per maintenance event would be required. Booster pump stations that are incorporated into the project will be operated to convey the water, but the capacity and amounts of water pumped is currently unknown.

6.10 Groundwater Treatment Facilities

Groundwater Treatment at Well Sites. Operations consist of running and maintaining the treatment plant. The treatment plants are assumed to operate 50 to 90 percent of the time. The energy requirements and chemicals required to operate these plants are presently unknown. Waste generation is presently unknown.

Regional Groundwater Treatment. Operations consist of running and maintaining the treatment plant. The treatment plants are assumed to operate 50 to 90 percent of the time. The energy requirements and chemicals required to operate these plants are presently unknown. Waste generation is presently unknown.

Improve Existing Groundwater Treatment Facilities. Operations consist of running and maintaining the treatment plant. The treatment plants are assumed to operate 80 to 90 percent of the time. The energy requirements and chemicals required to operate the proposed improvements at these plants are presently unknown. Waste generation associated with the proposed improvements at these plants is presently unknown.

7. CONSTRUCTION SCENARIOS

In general, the types, configuration and exact location of future specific projects that will be constructed in support of the OBMPU have not been determined. However, there are a few specific Projects that have been identified at a sufficient level of detail that a location has been pinpointed in which a specific project will be developed. For instance, the CIM Storage Basin Project is proposed to be located at the CIM; however, the Project specifications at that site have not yet been identified. For the remaining projects listed under Section 5, Summary of All Facilities above, it is possible to foresee some of the infrastructure that is likely to be constructed and to project the maximum expected impacts that would result from construction and operation of the infrastructure. Impacts associated with specific future projects would be evaluated in second-tier CEQA evaluations to determine if the actual impacts fall within the impacts forecast by this analysis, or require subsequent CEQA evaluations and determinations. These evaluations would be conducted under Section 15162 of the State CEQA Guidelines.

The purpose of the following general construction scenarios is to assist the reviewer to understand how the proposed facilities will be installed and the amount of time required for their construction. This information also provides essential data for making the program air quality impact forecasts using the most current CalEEMod emission forecast model.

7.1 Wells

The OBMPU will require the installation of an estimated 78 wells over a period of 20 years; these figures are inclusive of wells proposed to be developed to relocate 25,000 afy of pumping from MZ-1 to MZ-2 and/or MZ3 (10 wells), constructing new wells in the existing desalter well field areas to increase pumping by up to 6,000 afy to maintain Hydraulic Control (8 wells), and 60 ASR wells proposed to be developed to increase pumping and supplemental water recharge capacity by up to about 70,000 afy and to increase wet-water recharge capacity in MZ-1 by up to 25,000 afy. Installing 78 wells over 20 years can be evaluated based on an average number of wells per year (4 wells) or based on a possible maximum number of wells per year, which for planning purposes will be 10 wells per year. Thus, for analysis purposes it is assumed that a maximum of 10 wells per year may be developed. Development of up to 10 new wells during a given year will require the delivery and set up of the drilling rig at each site. It is anticipated these wells will be drilled at different times and the drilling equipment will be transported to and from the sites on separate occasions. For the purposes of this evaluation, it is forecast that delivery of the drilling equipment 10 times (# of wells anticipated to be drilled in a year) in a year will result in ten 50-mile round-trips for the drill rigs.

It is assumed that the average pumping capacity for a new convectional pumping or ASR well will range from 400 to 2,300 gpm depending on the location of the well (see Summary of Operational Scenarios).

It is anticipated that about five persons will be on a given well site at any one time to support drilling a well: three drillers, the hydrologist inspector, and a foreman. Daily trips to complete the well will average about 15 roundtrips per day, which at various points of construction will include: two roundtrips for drill rigs; between 6 and 12 roundtrips for cement trucks; about 5 trips to deliver pipe; and about 10 trips per day for employees.

For analysis purposes it is assumed that each well would be drilled using the direct rotary or fluid reverse circulation rotary drilling methods. The average area of disturbance of each well site is estimated to be one-half an acre or less. Access to the drilling site for the drilling rig and support vehicles would be from adjacent roadways. Typically, well drilling requires only minimal earth movement and/or grading.

The drilling and development of each well to will require drilling to—in most cases—between 250 and 1,500 feet below ground surface (bgs). The proposed schedule for constructing each well would be as follows: drilling, construction, and testing of each well would require approximately six weeks to complete (about 45 days, of which 15 to 20 days would include 24-hour, 7-day a week drill activity). For planning purposes, a construction and testing schedule duration of 60 days per well is assumed to account for unforeseen circumstances (e.g. extreme weather, equipment break downs, etc.) that could affect the drilling and testing schedule. The well casings are expected to be welded and it will be assumed that well development and installation will require a two week use of a diesel generator.

The borehole for the well would be drilled using at least two separate drilling passes. The first pass, or pilot borehole, would be drilled using a 17.5-inch diameter bit to an estimated maximum depth below the ground surface, which would correspond to the top of the consolidated bedrock in the area, or a depth selected by the project hydrologist/hydrogeologist. Upon completion of the geophysical logs, the pilot borehole would be enlarged (reamed) to a diameter of 24 inches to approximately the same depth to accommodate the well casing, screen and filter pack.

Once each well is constructed it would immediately be developed through a process of swabbing and airlifting. During this process, drilling fluids and suspended sediment would be removed from the well. After the drilling fluids are removed along with most of the suspended sediment, the well would be further developed through pumping.

ASR well development has essentially the same construction impacts as production well development. The primary physical difference between ASR and production wells is that different valve options are installed according to the type of well.

7.2 Monitoring Wells

The OBMPU estimates that about 200 monitoring wells will be installed: 100 groundwater level monitoring wells, and 100 groundwater quality monitoring wells. It is assumed that a maximum average of 20 monitoring wells per year may be developed in a single year. Development of up to each new monitoring wells during a given year will require the delivery and set up of the drilling rig. It is anticipated these wells will be drilled at different times and the drilling equipment will be transported to and from the sites on separate occasions. For the purposes of this evaluation, it is forecast that delivery of the drilling equipment 20 times in a year will result in twenty 50-mile round-trips.

Monitoring well development has essentially the same construction impacts as production well development, except it does not require test pumping.

7.3 Monitoring Devices

The installation of up to 300 in-line flow meters and up to 100 transducer data loggers will require one round-trip per device, or a total of 400 round trips over an undefined period of time. These trips are anticipated to occur within the Basin, as such the average round-trip length to install one in-line flow meter is anticipated to be 40 miles. For analysis purposes up to 100 monitoring devises are assumed to be installed in a single year.

The OBMPU anticipates the installation of an unknown number of flow and stage measuring equipment and meteorological monitoring equipment in and near storm water drainage and recharge facilities. The installation of each device is anticipated to require one round-trip, for an estimated total of 50 round-trips. These trips are anticipated to occur within the Basin, as such the average round-trip length to install one in-line flow meter is anticipated to be 40 miles.

The installation of up to three extensometers will require 7 round-trips, and 7 days to complete the installation of each device. For each of the 7 days required for extensometer installation, it is anticipated that average trip length will be about 40 miles in length because these trips are anticipated to occur within the Basin. *A truck mounted crane could be used to lower the cable extensometer anchor weight into the well casing.*

7.4 Storage Reservoirs

The OBMPU proposes to develop 3 new storage reservoirs, and install modifications to four existing reservoir/basins. It is forecast that for site preparation of a basin and access road, no more than 2 acres will be actively graded on a given day, while the OBMPU envisions constructing an area of up to 260 to 310 acres of new storage reservoirs. Each new basin is anticipated to be excavated to depths ranging from 20 to 100 feet. Given the area required to install the 3 new storage reservoirs, it is anticipated that the time required for the construction of these 3 new storage reservoirs is about 6-18 months per basin or a total of 18 months to 4.5 years to construct all reservoirs.

It is anticipated that grading activities will occur over an average of up to 90 to 120-day period and will require two bull dozers, two front end loaders, two water trucks, several scrapers, two excavators and four dump/haul trucks operating 6-8 hours per day. Calculations assume 20 workers will each commute 40 miles round-trip to each of the three storage basin sites. It is anticipated that no more than two reservoirs would be constructed per year.

Construction of each storage basin will require the delivery and installation of equipment and materials. It is not known whether each site will balance as the basins will require excavation to reach the desired depth. However, it is anticipated that no more than 2 million cubic yards (cy) of materials total would be hauled off site by 15 cy trucks. No more than 100 round trips per day at 30 miles round-trip would be required to accomplish the effort to remove excess materials off-site. As such, an estimated total of 110 round trips (trucks and employees) would be required to haul excess materials to a soil receiving facility. Additionally, given that it is known that contaminated may soils exist at one or more of the proposed storage basin sites, any contaminated soils will need to be properly characterized by identifying the contaminant discovered, and, based on the contaminants discovered, the soils will either be treated, blended, or directly disposed of at an appropriate facility.

It is assumed that at least two of the storage reservoirs described herein will require lining to prevent high groundwater issues in perched aquifers. The lining will consist of filling the basin floor with bentonite and soil, and compacting the top soil by rolling or tamping.

In addition to the above construction equipment, heavy duty trucks will be employed for on-site deliveries. Smaller trucks and automobiles will be utilized for on-site supervision and employee commuting. The diesel delivery trucks are assumed to require 300 on-road miles per day for a total of 30 days.

It is anticipated that the modifications proposed at the Lower Cucamonga Basins, Riverside Basin, Vulcan Basin, and Jurupa Basin will require 60 days to complete grading activities, and will require one bull dozer, a front-end loader, water truck, grader, excavator and two dump/haul trucks operating 8 hours per day. Completion of the modifications to these basins is anticipated to require a total of 6 months to a year to complete. As with the above outline for construction of new storage reservoirs, it is anticipated that the proposed basin modification will require the delivery and installation of equipment and materials. This phase of construction will result in 6 truck trips on the worst-case day with an average round trip of 40 miles delivering construction materials and equipment (concrete, steel, pipe, etc.). Calculations assume six workers will each commute 40 miles round-trip to the work site. In addition to the above construction equipment, heavy duty trucks will be employed for on-site deliveries. Smaller trucks and automobiles will be utilized for on-site supervision and employee commuting. The diesel delivery trucks are assumed to require 300 on-road miles per day for a total of 10 days.

Flood Managed Aquifer Recharge Facilities
In addition to the proposed storage reservoirs, the OBMPU proposes up to 200 acres of Flood Managed Aquifer Recharge (MAR) facilities within existing agricultural use areas. MAR facility construction consists of grading existing agricultural lands to be able to hold and recharge surface water. The construction impacts are assumed to be a fraction of the impacts of the storage reservoirs.

7.5 Water Treatment Plant Modifications

Upgrades at IEUA Recycled Water Treatment Plants (RP-1, RP-4, RP-5, CCWRF)
The construction of a new treatment train (i.e. advanced water treatment to minimize TDS concentration in the recycled water generated at IEUA's Treatment Plants) would require treatment of up to 15,000 afy of recycled water at one or more of IEUA's Recycled Water Reclamation Plants (WRP). For the purposes of this analysis, it is assumed that advanced recycled water treatment would be developed at one or more of IEUA's existing Treatment Plants, and that no more than one water treatment facility would be constructed per year. Upgrades to IEUA's four Recycled Water Treatment Plants were examined in detail within IEUA's 2017 FMP PEIR. The construction of WRP facilities will be referenced to the 2017 PEIR in the analyses presented the remainder of this document.

Modifications to an Existing Imported Water Treatment Facility: Water Facilities Authority Agua de Lejos Treatment Plant (Part 1). The OBMPU envisions constructing improvements to the Water Facilities Authority (WFA) Agua de Lejos Treatment Plant to remove some or all its solids handling limitations, and envisions other improvements to increase its capacity to its original design capacity, thereby increasing in-lieu recharge capacity. The specific improvements needed to increase the capacity of the plan are currently unknown.

7.6 Desalters and Advanced Water Treatment Facilities

The OBMPU envisions expanding the existing Chino Desalter capacity by a total of up to 6,000 afy. The area disturbed during construction of the treatment plant capacity expansion would be limited to the disturbed areas at the two existing Chino Desalter treatment plant sites. As such, desalter expansion is proposed occur within an existing facility and would not require grading or site preparation. Installation of the expansion equipment would require a maximum of 15 workers and typical construction site equipment (cranes for setting ion exchange vessels, front end loaders, fork lifts, etc.) Impact estimates will assume 1 vehicle round-trip per worker and 10 deliveries per day resulting in about 25 round-trips per day over a construction period of 12 months. The average daily round-trip is anticipated to be 40-miles.

Conversely, the OBMPU envisions constructing a new advanced water treatment plant. The area expected to be disturbed by the construction and operation of the plant is 10 acres. It is anticipated that a new advanced treatment plant would be designed to treat up to 20 mgd of water. The construction of the 20 mgd advanced water treatment facility would consist of site clearing, grading, construction of facilities, installation of equipment, and site completion. Construction equipment would include the following: one bull dozer or motor grader, backhoes, loaders, dump trucks, crew trucks, concrete trucks, cranes, personal vehicles, compactor, delivery trucks, and a water truck. It is anticipated that the maximum number of construction personnel at a site on any given day will be 15 persons. The maximum number of truck deliveries is forecasted at 10 per day at 40-miles round-trip per day of construction. Materials and equipment would be delivered to the site including piping, building materials, concrete forms, roofing materials, HVAC equipment, pumps, diffusers, screens, belt presses, and screw presses. Each advanced water treatment facility will require about 18 months to construct.

Brine Management Facilities. The OBMPU envisions constructing brine management facilities that result in no net increase in brine disposal. The specific brine management facilities are currently unknown.

7.7 Conveyance Pipelines

An estimated 500,000 LF of pipeline may be installed in support of OBMPU through 2050. The maximum pipe length that would be installed in a single year would be 100,000 LF, which is the total pipeline length anticipated to be required for the East/West Regional Pipeline, plus ancillary pipeline alignments. It is forecast that most of the pipe will range from 10-inch to 84-inch diameter. It is assumed that an underground utility installation team can install an average of 200-400 lineal feet of potable water pipeline, recycled water line, or storm drains per day. A team consists of the following:

200-400 feet of pipeline installed per day
1 Excavator
1 Backhoe
1 Paver
1 Roller
1 Water truck
Traffic Control Signage and Devices
10 Dump/delivery trucks (40 miles round trip distance)
Employees (14 members per team, 40-mile round-trip commute)

The emissions calculations are based upon the above assumptions for each pipeline installation team. Typically, up to 800 feet of pipeline trench could be excavated, the pipe installed, backfilled, and compacted each day during pipeline installation in undeveloped areas whereas only 400 ft per day can be installed in developed roadways. In either case equipment would be operated for roughly the same portion of the day and daily equipment emissions would be the same, except that undeveloped areas would not require pavement removal and reinstallation.

It is assumed that two teams will be installing pipelines for a maximum total of 800 LF per day (400 x 2 = 800 LF). It is assumed that the proposed pipeline installation will occur for a maximum of 260 days in one calendar year.

Ground disturbance emissions assume roughly half an acre of land would be actively excavated on a given day. It is anticipated that installation of pipeline in developed locations will require the use of a backhoe, crane, compactor, roller/vibrator, pavement cutter, grinder, haul truck and two dump trucks operating 6 hours per day; a water truck and excavator operating 4 hours per day and a paving machine and compacter operating 2 hours per day. Installation of pipeline in undeveloped locations would require the same equipment without the paving equipment (cutter, grinder, paving machine).

The pipelines that would be installed in support of OBMPU are anticipated to use push-on joints (e.g., gasketed bell-and-spigot) that do not require welding. However, the Contractor may occasionally use a portable generator and welder for equipment repairs or incidental uses.

7.8 Groundwater Treatment Facilities

Groundwater Treatment at Well Sites
The OBMPU envisions constructing water treatment facilities at well sites or at sites near to wells to treat groundwater to meet drinking water standards for local use. The area expected to be disturbed by the construction and operation of the proposed treatment facilities would be limited to existing well sites; and will range from about 0.5 acres to 2 acres per facility for new treatment facilities located near a well site. Construction of water treatment facilities may involve site

demolition; site paving; site prep/grading; excavation and installation of yard pipes; installation of treatment facilities; site finishing (landscaping, misc. curb/cutter, etc.); site drainage (above and below grade). Construction equipment would include the following: one bull dozer or motor grader, backhoes, loaders, dump trucks, crew trucks, concrete trucks, cranes, personal vehicles, compactor, delivery trucks, and a water truck. It is anticipated that the maximum number of construction personnel at a site on any given day will be 5 persons. The maximum number of truck deliveries is forecasted at 5 per day at 40-miles round-trip per day of construction. Each water treatment facility will require about three months to construct.

Regional Groundwater Treatment
The OBMPU envisions constructing an unknown number of regional water treatment facilities located in the vicinity of multiple wells. The area expected to be disturbed by the construction of the proposed treatment facilities would be 10 acres due to the pipeline installation required to convey water from multiple wells to a centralized location at which the treatment facility will be located. A regional groundwater treatment facility would will range from about 2 acres to 4 acres in size per facility. Construction of water treatment facilities may involve site demolition; site paving; site prep/grading; excavation and installation of yard pipes; installation of treatment facilities; site finishing (landscaping, misc. curb/cutter, etc.); site drainage (above and below grade).[31] Construction equipment would include the following: one bull dozer or motor grader, backhoes, loaders, dump trucks, crew trucks, concrete trucks, cranes, personal vehicles, compactor, delivery trucks, and a water truck. It is anticipated that the maximum number of construction personnel at a site on any given day will be 10 persons. The maximum number of truck deliveries is forecasted at 10 per day at 40-miles round-trip per day of construction. Each regional water treatment facility will require about 12-months to construct.

7.9 <u>Booster Stations</u>

Booster stations are required to pump water from areas at a lower elevation within the Basin, to areas located at a higher elevation. The total number of booster stations to be constructed in support of the OBMPU is unknown. It is forecasted that, at each site, no more than 0.5 acre will be actively graded on a given day for site preparation of each booster station. It is anticipated that grading activities will occur over a 5-day period and will require one bull dozer or motor grader operating 8 hours per day, one water truck operating 4 hours per day and one dump truck operating 4 hours per day. Calculations assume five workers will each commute 40 miles round-trip to each work site.

Construction of each pump station will require the delivery and installation of equipment and materials. This phase of construction will result in 6 truck trips on the worst-case day with an average round trip of 20 miles delivering construction materials and equipment (concrete, steel, pipe, etc.). Installation of the booster station will require the use a crane, forklift, backhoe and front loader operating 4 hours per day. Calculations assume five workers will each commute 40 miles round-trip to the work site.

Each booster pump station is assumed to be housed within a block building, and will require a transformed to be installed to handle the electric power delivered to the pumps. The proposed booster pump station building may include a pump room, electric control room, odor control facilities, chemical tanks, and storage room. Construction of the booster pump station would

[31] Please refer to the discussion of the construction scenario for conveyance facilities for a depiction of the construction associated with installation of pipeline that may be associated with the proposed regional groundwater treatment facilities.

involve installation of piping and electrical equipment, excavation and structural foundation installation, pump house construction, pump and motor installation, and final site completion.

The pump stations proposed are anticipated to be located at sites that have permanent power available for construction, as such a generator is not anticipated to be required for welding required to construct the booster pump stations.

8. ENTITLEMENTS, APPROVALS AND OTHER AGENCY PARTICIPATION

Implementation of future individual project(s) in accordance with the OBMPU may require a variety of approvals from other agencies. This section summarizes agency approvals that have been identified to date. This list may be expanded as the environmental review proceeds. Consequently, it should not be considered exhaustive.

- Notice of Intent (NOI) to the State Water Resources Control Board (SWRCB) for a NPDES general construction stormwater discharge permit. This permit is granted by submittal of an NOI to the SWRCB, but is enforced through a Storm Water Pollution Prevention Plan (SWPPP) that identifies construction best management practices (BMPs) for the site. In the project area, the Santa Ana Regional Water Quality Control Board enforces the BMP requirements described in the NPDES permit by ensuring construction activities adequately implement a SWPPP. Implementation of the SWPPP is carried out by the construction contractor, with the Regional Board and county providing enforcement oversight.

- The project includes the potential discharge of fill into or alterations of “waters of the United States,” “waters of the State,” and stream beds of the State of California. Regulatory permits to allow fill and/or alteration activities due to project activities such as pipeline installation are likely be required from the Army Corps of Engineers (ACOE), the Regional Board, and California Department of Fish and Wildlife (CDFW) over the life of the OBMPU. A Section 404 permit for the discharge of fill material into “waters of the United States” may be required from the ACOE; a Section 401 Water Quality Certification may be required from the Regional Board; a Report of Waste Discharge may be required from the Regional Board; and a 1600 Streambed Alteration Agreement may be required from the CDFW.

- The U.S. Fish and Wildlife Service (USFWS) and/or CDFW may need to be consulted regarding threatened and endangered species documented to occur within an area of potential impact for future individual projects. This could include consultations under the Fish and Wildlife Coordination Act.

- Land use permits may be required from local jurisdictions, such as individual cities and the two Counties (Riverside and San Bernardino).

- Air quality permits may be required from the South Coast Air Quality Management District (SCAQMD).

- Encroachment permits may be required from local jurisdictions, such as individual cities, California Department of Transportation (Caltrans), the two counties (Riverside and San Bernardino), Flood Control agencies, and private parties such as Southern California Edison, The Gas Company, or others such as Union Pacific Railroad.

- Watermaster has a separate approval process for determining material physical injury to the stakeholders within the Chino Basin.

- State Water Resources Control Board will be a responsible agency if permits or funding are requested from the State Revolving Fund Program or Division of Drinking Water.

This is considered to be a partial list of other permitting agencies for future OBMPU future individual projects.

9. CEQA RESPONSIBLE AGENCIES

In addition to the above agencies that may be required to review and grant authorizations for future OBMPU projects, the Chino Basin Watermaster functions as a unique entity that has been created by the court. The Watermaster is composed of a Board that consists of member agencies from three groups: an Appropriative Pool, Non-Appropriative Pool, and Agricultural Pool, and four other public agencies (see below), effectively the water producers in the Chino Basin. Individual members of the various pools may assume responsibility for implementing individual projects and activities covered by this OBMPU EIR. To do this the individual agency would identify a specific project or activity evaluated in this CEQA document and then conduct a shortened environmental review under Sections 15162 and 15168 of the State CEQA Guidelines. Such a review for CEQA compliance could conclude that the project falls within the scope of analysis in this document, i.e., it is consistent with the findings in this EIR; decide that the proposed project or activity is a minor technical change relative to the OBMPU project description and is subject to an Addendum; or the agency could find that a project or activity exceeds the scope of the this CEQA document's evaluation and requires a supplemental or subsequent environmental document as outlined in State CEQA Guidelines Sections 15162 or 15163. These Responsible Agencies include:

<u>Agricultural Pool, 2019*</u>

State of California, Chino Institute for Men
State of California, Department of Conservation
State of California, Department of Justice

- Please note that specific companies or parties that are not public agencies are part of the Agricultural Pool, but individuals or group representatives do not have authority to implement CEQA. Please refer to Appendix 2 for a list of all Agricultural Pool participants.

<u>Non-Agricultural Pool, 2019*</u>

City of Ontario
County of San Bernardino
Monte Vista Water District

- Please note that specific companies or parties that are not public agencies are part of the Agricultural Pool, but individuals or group representatives do not have authority to implement CEQA. Please refer to Appendix 2 for a list of all Non-Agricultural Pool participants.

<u>Appropriative Pool Committee, 2019</u>

Monte Vista Water District
Cucamonga Valley Water District
City of Chino
City of Chino Hills
City of Fontana
City of Norco
City of Ontario
City of Pomona
City of Upland
County of San Bernardino
Jurupa Community Services District
West Valley Water District

- Please note that specific companies or parties that are not public agencies are part of the Appropriative Pool Committee, but individuals or group representatives do not have authority to implement CEQA. Please refer to Appendix 2 for a list of all Appropriative Pool Committee participants.

<u>Other Agencies Participating in the Judgment/Agreements</u>

IEUA
Three Valleys Municipal Water District
Western Municipal Water District
Chino Basin Water Conservation District

In all future circumstances, IEUA will remain the Lead Agency for the OBMPU CEQA document and the Watermaster will maintain annual records for cumulative projects implemented under the OBMPU on an annual basis. A CEQA Responsible Agency shall coordinate with these agencies when it assumes CEQA Lead Agency status for a future specific project. Thus, IEUA and Watermaster will continue to accumulate information on implementation of the OBMPU and provide a future project specific Lead Agency with essential information regarding the cumulative impact circumstances at the time a proposed specific project is ready for implementation.

10. CUMULATIVE PROJECTS

The intent of a cumulative impact evaluation is to provide the public and decision-makers with an understanding of a given project's contributions to area-wide or community environmental impacts when added to other or all development proposed in an area. The state CEQA Guidelines provide two alternative methods for making cumulative impact forecasts: (1) a list of past, present and reasonably anticipated projects in the project area, or (2) the broad growth impact forecast contained in general or regional plans. Because of the planning character of this project, it will be evaluated in the context of adopted General Plans.

From a water planning perspective, the 2000 OBMP PEIR (Peace I Agreement) and the 2010 Peace II SEIR (Peace II Agreement) represent a cumulative, or carrying capacity, evaluation of water resources in the Chino Basin. Thus, the analysis of Chino Basin water resources contained in this document represents a cumulative analysis of the activities and facilities required to manage the Basin's water resources. No other projects were identified within the project area or vicinity that would contribute directly to cumulative impacts or cumulative demand for local groundwater infrastructure. This does not include individual water infrastructure projects implemented by local water purveyors to supply potable water to customers. Most of the city General Plans for the Chino Basin assume that buildout or near buildout will occur within their jurisdiction by 2050. Thus, substantial general growth in these cities will occur concurrent with the implementation of the OBMPU. Individual water purveyor infrastructure will be implemented as needed in the future as growth occurs in the Chino Basin, but it is not possible to identify future specific projects without speculation. It is assumed that the proponents of such projects will incorporate the impact evaluations in this document as part of their cumulative impact analyses when such specific projects are proposed.

Because the OBMPU addresses comprehensive water management facilities or activities within a portion of the upper Santa Ana River watershed, there may also be other projects within the watershed that will be implemented. The only such project that is currently defined sufficiently to address under this cumulative impact analysis is the Habitat Conservation Plan (HCP) currently under consideration by the San Bernardino Valley Municipal Water District (Valley District). Where pertinent, the impacts from implementing the HCP on behalf of the upper Santa Ana River watershed will be considered in this document as a possible cumulative impact.

11. NATIVE AMERICAN CONSULTATION

Have California Native American tribes traditionally and cultural affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, has consultation begun?

> Note: Conducting consultation early in the CEQA process allows tribal governments, lead agencies, and project proponents to discuss the level of environmental review, identify and address potential adverse impacts to tribal cultural resources, and reduce the potential for delay and conflict in the environmental review process. (See Public Resources Code section 21083.3.2.) Information may also be available from the California Native American Heritage Commission's Sacred Lands File per Public Resources Code section 5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that Public Resources Code section 21082.3(c) contains provisions specific to confidentiality.

Exhibit 1

Chino Basin Adjudicated Boundary

Major SAWPA Member Agencies

Santa Ana River Watershed

Produced by:

WEI
Wildermuth Environmental, Inc.

Author: GAR
Date: 12/16/2019
Name: 1.) Chino in SAR Watershed

0 10 Miles

0 10 20 Kilometers

Prepared for:

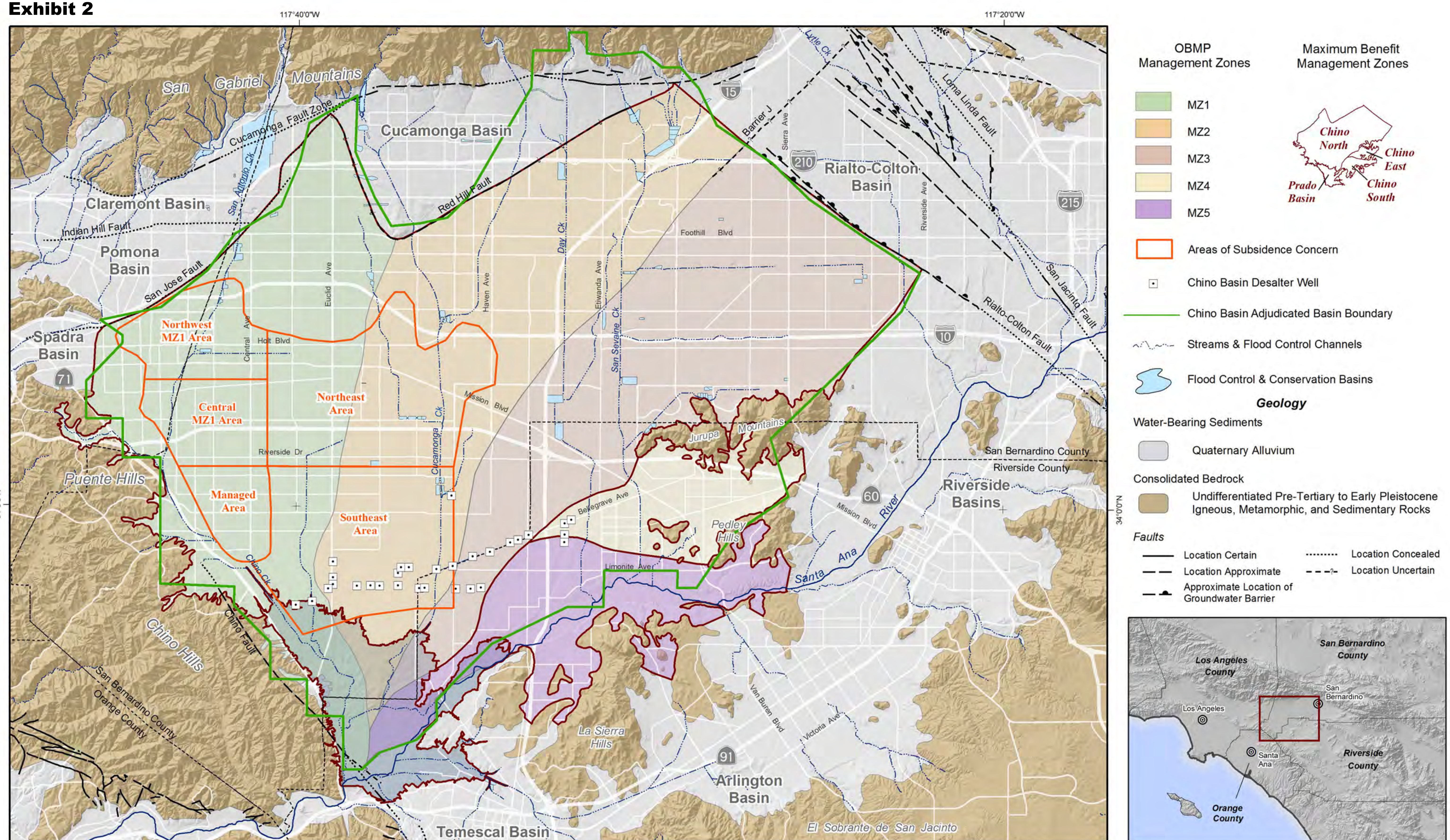
OBMP 2020 Update
Project Description

Chino Basin Watermaster — Partners in Basin Management

Location of the Chino Basin and the Santa Ana River Watershed

Figure 1-1

Exhibit 2



Prepared by:

WEI
WILDERMUTH ENVIRONMENTAL, INC.

Author: LG
Date: 12/19/2019
Document Name: 2.) Project Location + Bulletin 118

Prepared for:

OBMP 2020 Update
Project Description

Chino Basin

OBMP Management Zones, Maximum Benefit Management Zones and Areas of Subsidence Concern

Figure 1-1

Exhibit 3

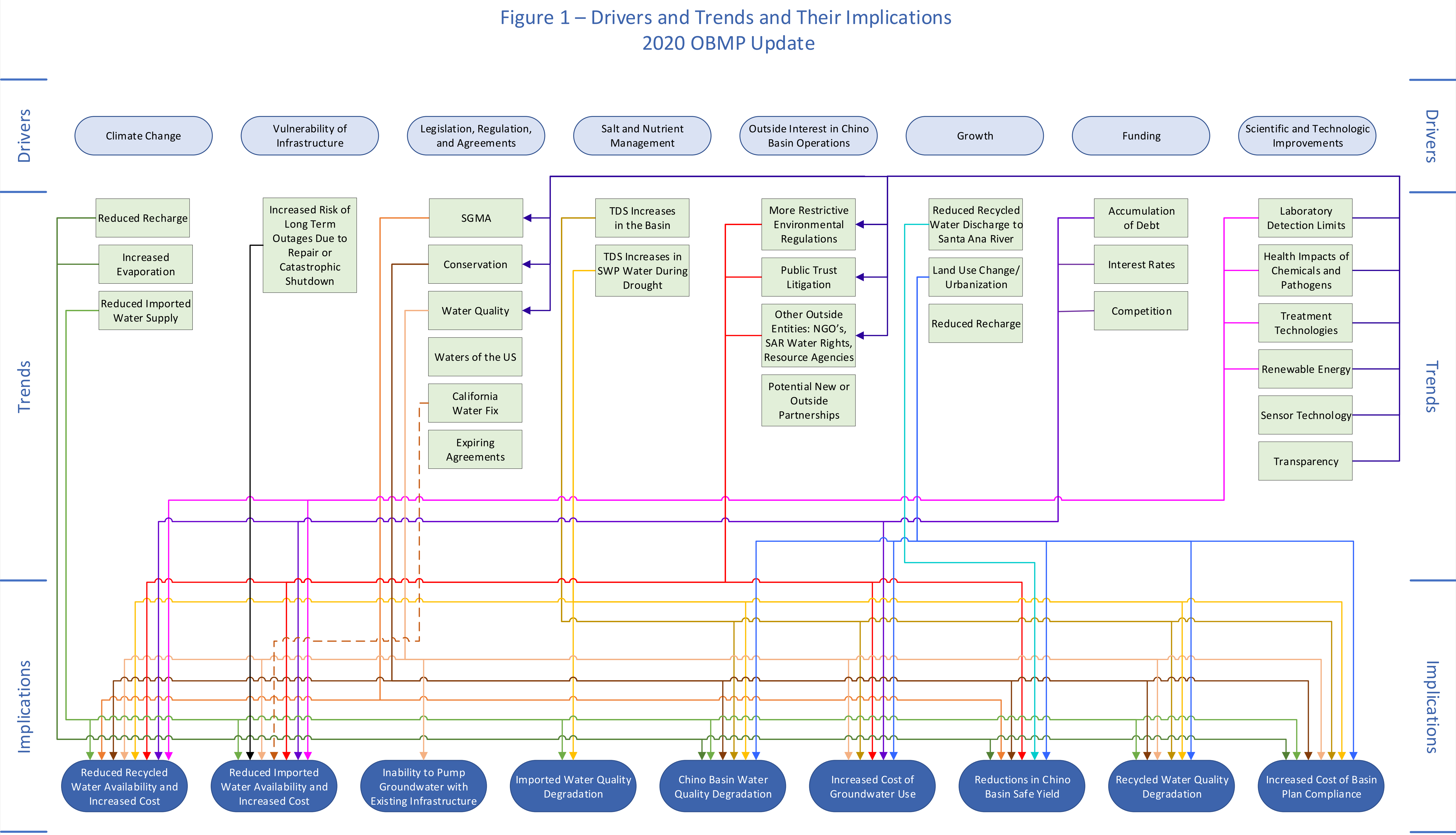


Figure 1 – Drivers and Trends and Their Implications
2020 OBMP Update
Drivers
Trends
Implications
Climate Change
Vulnerability of Infrastructure
Legislation, Regulation, and Agreements
Salt and Nutrient Management
Outside Interest in Chino Basin Operations
Growth
Funding
Scientific and Technologic Improvements
Reduced Recharge
Increased Evaporation
Reduced Imported Water Supply
Increased Risk of Long Term Outages Due to Repair or Catastrophic Shutdown
SGMA
Conservation
Water Quality
Waters of the US
California Water Fix
Expiring Agreements
TDS Increases in the Basin
TDS Increases in SWP Water During Drought
More Restrictive Environmental Regulations
Public Trust Litigation
Other Outside Entities: NGO's, SAR Water Rights, Resource Agencies
Potential New or Outside Partnerships
Reduced Recycled Water Discharge to Santa Ana River
Land Use Change/ Urbanization
Reduced Recharge
Accumulation of Debt
Interest Rates
Competition
Laboratory Detection Limits
Health Impacts of Chemicals and Pathogens
Treatment Technologies
Renewable Energy
Sensor Technology
Transparency
Reduced Recycled Water Availability and Increased Cost
Reduced Imported Water Availability and Increased Cost
Inability to Pump Groundwater with Existing Infrastructure
Imported Water Quality Degradation
Chino Basin Water Quality Degradation
Increased Cost of Groundwater Use
Reductions in Chino Basin Safe Yield
Recycled Water Quality Degradation
Increased Cost of Basin Plan Compliance

Exhibit 4

Implementation actions for the next 20 years by Program Element
Program Element 1
Watermaster will continue to conduct the required monitoring and reporting programs, including collection of: groundwater production, groundwater level, groundwater quality, ground level, surface water, climate, water supply planning, biological, and well construction/destruction monitoring data.
Perform review and update of Watermaster's regulatory and Court-ordered monitoring and reporting programs and document in a work plan: *OBMP Monitoring and Reporting Work Plan* .
Perform periodic review and update of the *OBMP Monitoring and Reporting Work Plan* (or other guidance documents developed by Watermaster) and modify the monitoring and reporting programs, as appropriate.
Program Element 2
Continue to convene the Recharge Investigations and Projects Committee.
Complete the 2023 Recharge Master Plan Update (RMPU).
Implement recharge projects based on need and available resources.
Update the RMPU no less than every five years (2028, 2033, 2038).
Program Element 4
Implement Watermaster's Subsidence Management Plan, and adapt it as necessary.
Watermaster will arrange for the physical recharge of at least 6,500 afy of Supplemental Water in MZ-1 as an annual average. Watermaster may re-evaluate the minimum annual quantity of Supplemental Water recharge in MZ-1 and may increase this quantity through the term of the Peace Agreement.
Program Element 5
The IEUA will maximize the reuse of its recycled water in the Chino Basin.
The IEUA, the TVMWD, the WMWD, and/or other Party acting as a coordinating agency will establish or expand future recycled water planning efforts to maximize the reuse of all available sources of recycled water.
Watermaster will support the IEUA, the TVMWD, the WMWD, and/or others in their efforts to maximize recycled water reuse to ensure these efforts are integrated with Watermaster's groundwater and salinity management efforts.
The IEUA, the TVMWD, the WMWD, and/or other Party acting as a coordinating agency will establish or expand future integrated water resources planning efforts to address water supply reliability for all Watermaster Parties.
Watermaster will support the IEUA, the TVMWD, the WMWD, and/or others in their efforts to improve water supply reliability to ensure those efforts are integrated with Watermaster's groundwater management efforts.

Implementation actions for the next 20 years by Program Element
Program Element 6
Re-convene the water quality committee and meet periodically to update groundwater quality management priorities.
Develop and implement an initial emerging contaminants monitoring plan.
Prepare a water quality assessment of the Chino Basin to evaluate the need for a *Groundwater Quality Management Plan* and prepare a long-term emerging contaminants monitoring plan.
Continue to support the Parties in identifying funding from outside sources to finance cleanup efforts.
Develop and implement a *Groundwater Quality Management Plan* and periodically update it.
Implement long-term emerging contaminants monitoring plan.
Continue to conduct investigations to assist the parties and/or the Regional Board in accomplishing mutually beneficial objectives as needed.
Implement projects of mutual interest.
Program Element 7
Complete the 2020 update of TDS and nitrate projections to evaluate compliance with maximum benefit salt and nutrient management plan, and, if necessary, based on the outcome, prepare a plan and schedule to implement a salt offset compliance strategy.
Continue to implement the maximum-benefit salt and nutrient management plan pursuant to the Basin Plan.
Starting in 2025 and every five years thereafter, update water quality projections to evaluate compliance with the maximum-benefit salt and nutrient management plan.
Program Element 8/9
Complete and submit to the Court the 2020 Safe Yield Recalculation.
Complete and submit to the Court the 2020 Storage Management Plan (SMP).
Develop a *Storage and Recovery Master Plan* to support the design of optimized storage and recovery programs that are consistent with the 2020 Storage Management Plan and provide the Watermaster with criteria to review, condition, and approve applications in a manner that is consistent with the Judgment and the Peace Agreement.
Assess losses from storage accounts based on the findings of the 2020 Safe Yield Recalculation.
Update the Storage Management Plan in 2025 and every five years thereafter, and when: • the Safe Yield is recalculated, • Watermaster determines a review and update is warranted based new information and/or the needs of the parties or the basin, and • at least five years before the aggregate amount of managed storage by the parties is projected to fall below 340,000 af
Perform safe yield recalculation every 10 years (2030, 2040).
Update the storage loss rate following each recalculation of Safe Yield (2030, 2040) and during periodic updates of the SMP.

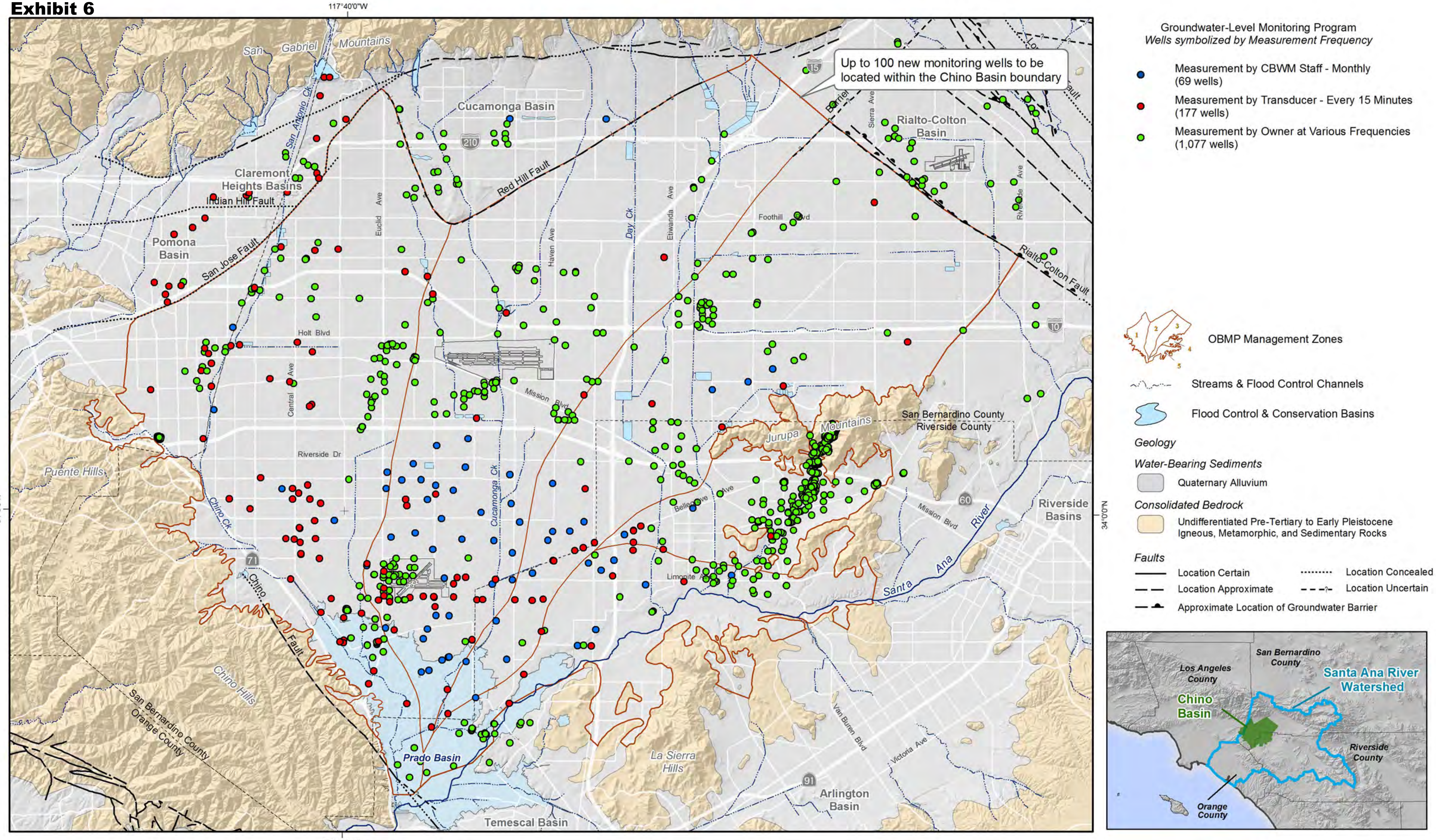
Actions in blue represent actions that are not in the 2000 OBMP ("new" actions).

Exhibit 5

List of facilities to be evaluated in CEQA	PE1	PE2	PE4	PE5	PE6	PE7	PE8/9
New monitoring wells	✓	✓	✓	✓	✓	✓	✓
New surface water and groundwater recharge monitoring facilities	✓	✓					✓
New meteorological monitoring facilities	✓	✓					✓
New meter installation at pumping wells	✓						
New extensometers	✓		✓				✓
New benchmarks	✓		✓				✓
New stormwater diversion, storage, transfer and recharge facilities		✓	✓	✓			✓
CIM storage facilities*		✓	✓	✓			✓
Flood MAR*		✓	✓	✓			✓
Regional conveyance:*		✓	✓	✓			✓
Lower Cucamonga Basin		✓		✓			✓
Mills Wetlands		✓		✓			✓
Riverside Basin		✓		✓			✓
Vulcan Basin *		✓		✓			✓
Confluence Project*		✓		✓			✓
Injection wells*		✓	✓	✓			✓
Treatment (for some sources)*		✓	✓	✓			✓
Restore WFA Agua de Lejos Treatment Plant capacity for in-lieu recharge		✓	✓	✓			✓
MS4 recharge project incentives		✓	✓				✓
Relocate pumping from MZ1 to MZ2/3 and southern portion of the Chino Basin and/or increase recharge in MZ1			✓				✓
New production wells*			✓				✓
Acquire supplemental water supplies*		✓		✓			
Regional conveyance				✓			✓
New dedicated regional conveyance facilities				✓			✓
North-south pipeline*				✓			✓
East-west pipeline*				✓			✓
Incorporate local conveyance facilities into a regional conveyance system*				✓			✓
Maximize recycled water reuse				✓			
Expand system for indirect reuse*				✓			
Advanced water treatment*				✓		✓	
Direct potable use*				✓			
New regional groundwater treatment plants (up to 10 mgd for local use; up to 30 mgd for export)*				✓	✓		✓
Expansion of existing groundwater treatment plants*				✓	✓		✓
Upgrade recycled water treatment plant to desalt effluent*						✓	
Maintain or increase groundwater pumping in Chino Creek Well Field (CCWF) area:							
New production wells in CCWF area*						✓	✓
Acquire wells in CCWF area*						✓	✓
New ASR wells in MZ2/3 north of Highway 60*							✓

*Includes conveyance infrastructure

Exhibit 6



Prepared by:

WEI
WILDERMUTH ENVIRONMENTAL, INC.

Author: SO
Date: 12/17/2019
File: 6.) Map of GWL.mxd

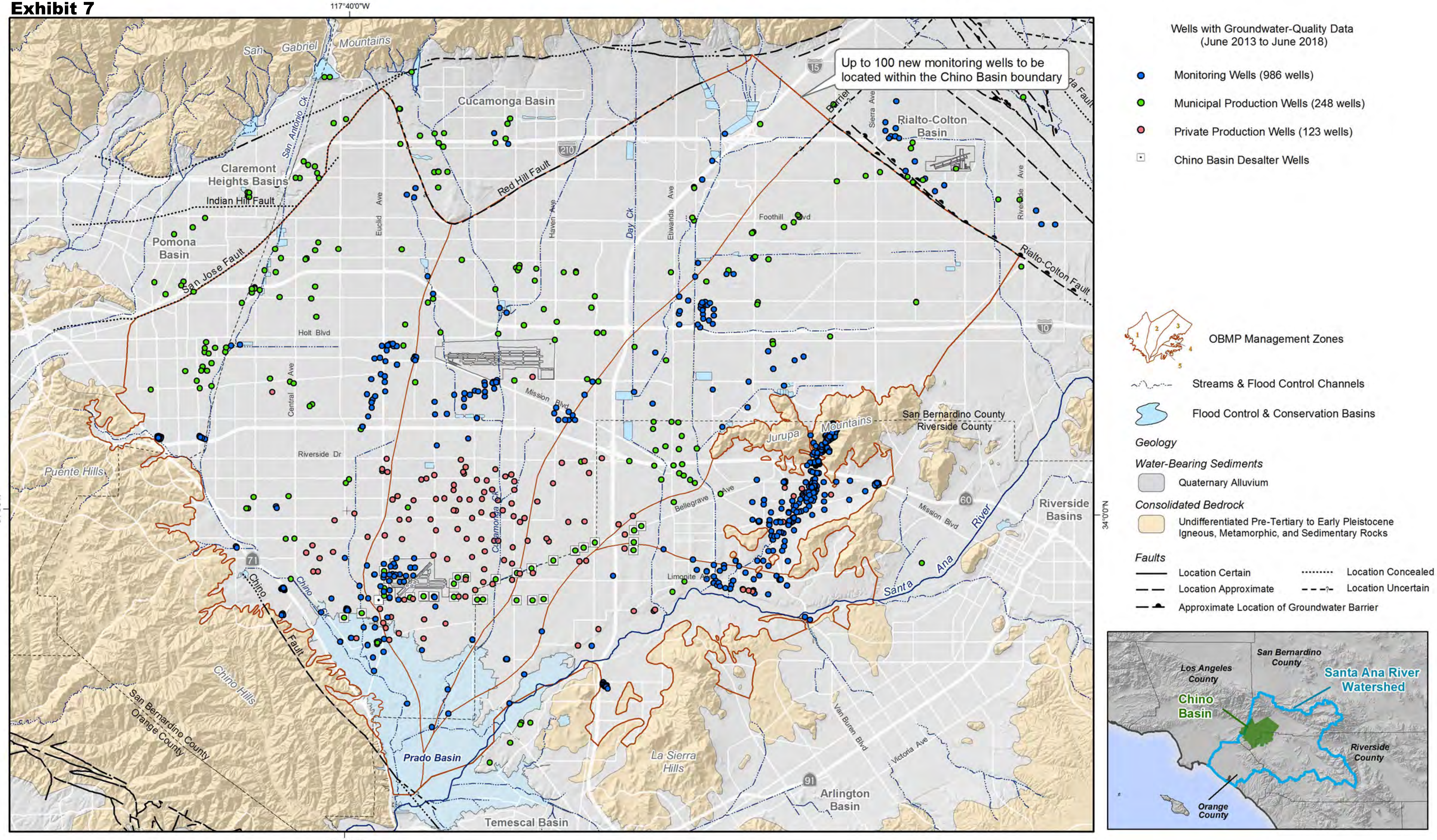
Prepared for:
OBMP 2020 Update
Scoping Report

Groundwater-Level Monitoring

Well Location and Measurement Frequency
Fiscal Year 2017/18

Exhibit L-3

Exhibit 7



Prepared by:

WEI
WILDERMUTH ENVIRONMENTAL, INC.

Author: SO
Date: 12/17/2019
File: 7.) Map of GWQ.mxd

Prepared for:

OBMP 2020 Update

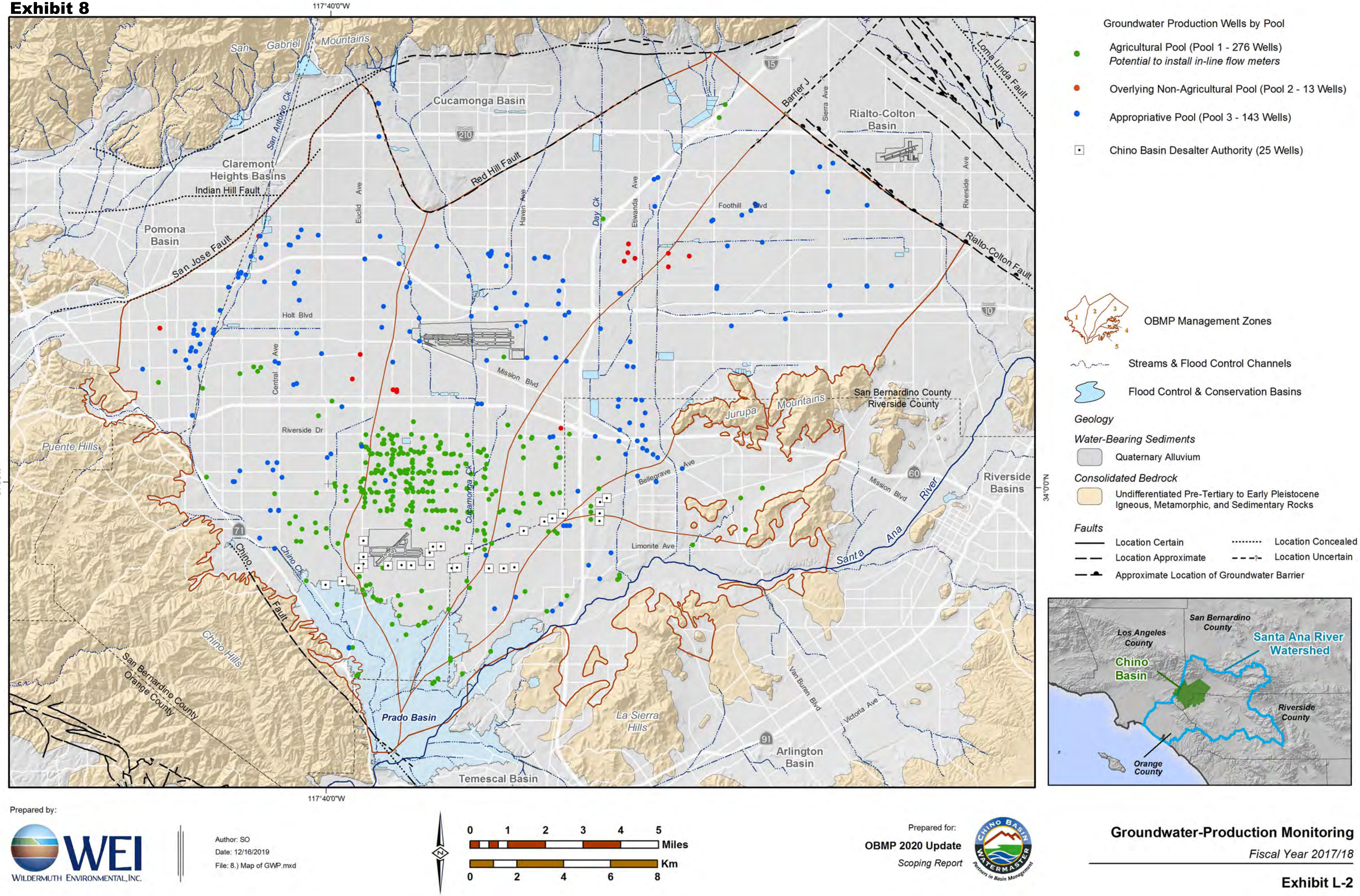
Scoping Report

Groundwater-Quality Monitoring

July 2013 to June 2018

Exhibit L-4

Exhibit 8



Prepared by:

WEI
WILDERMUTH ENVIRONMENTAL, INC.

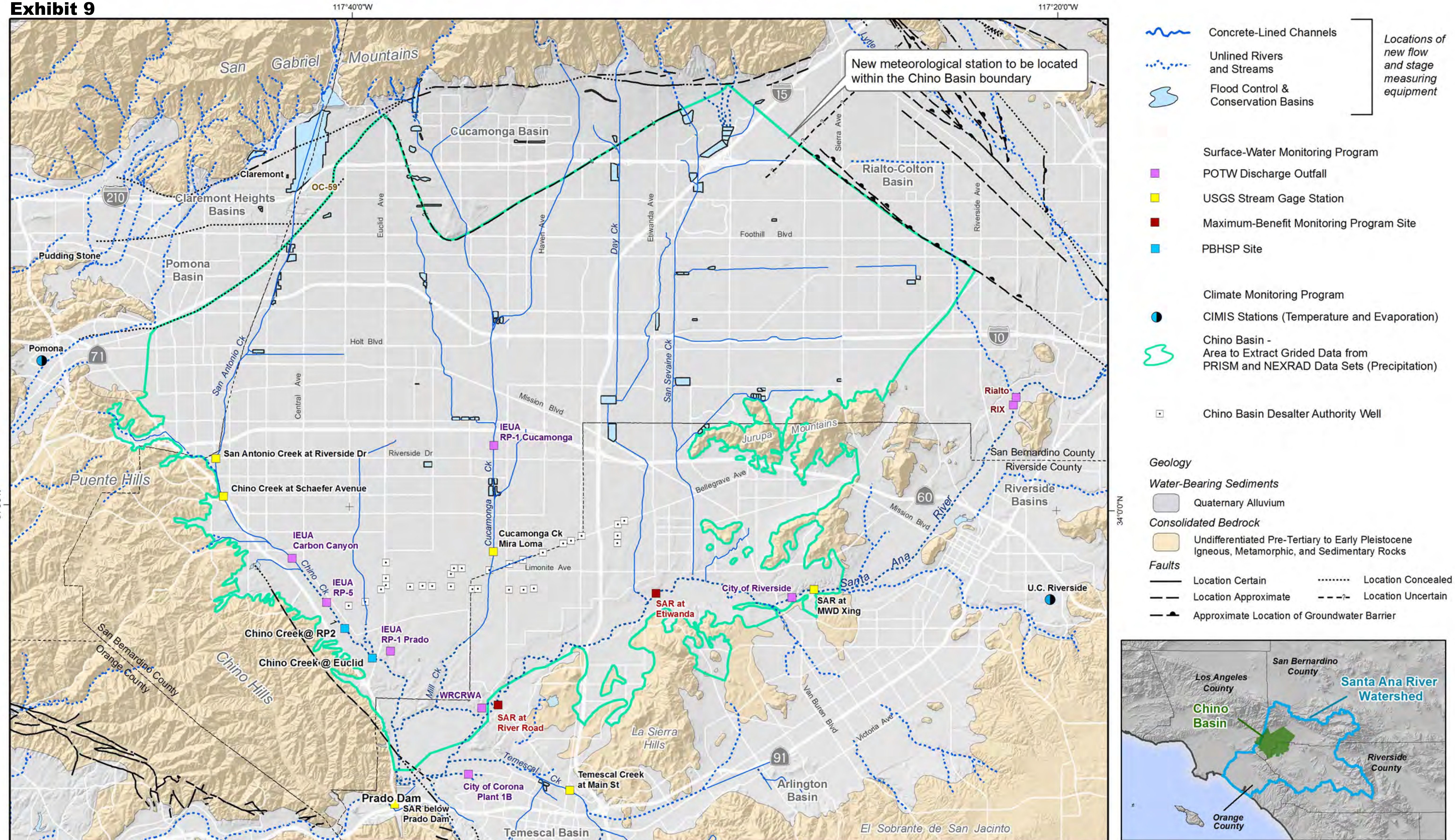
Author: SO
Date: 12/16/2019
File: 8.) Map of GWP.mxd

Prepared for:
OBMP 2020 Update
Scoping Report

Groundwater-Production Monitoring
Fiscal Year 2017/18

Exhibit L-2

Exhibit 9



Prepared by:

WEI WILDERMUTH ENVIRONMENTAL, INC.

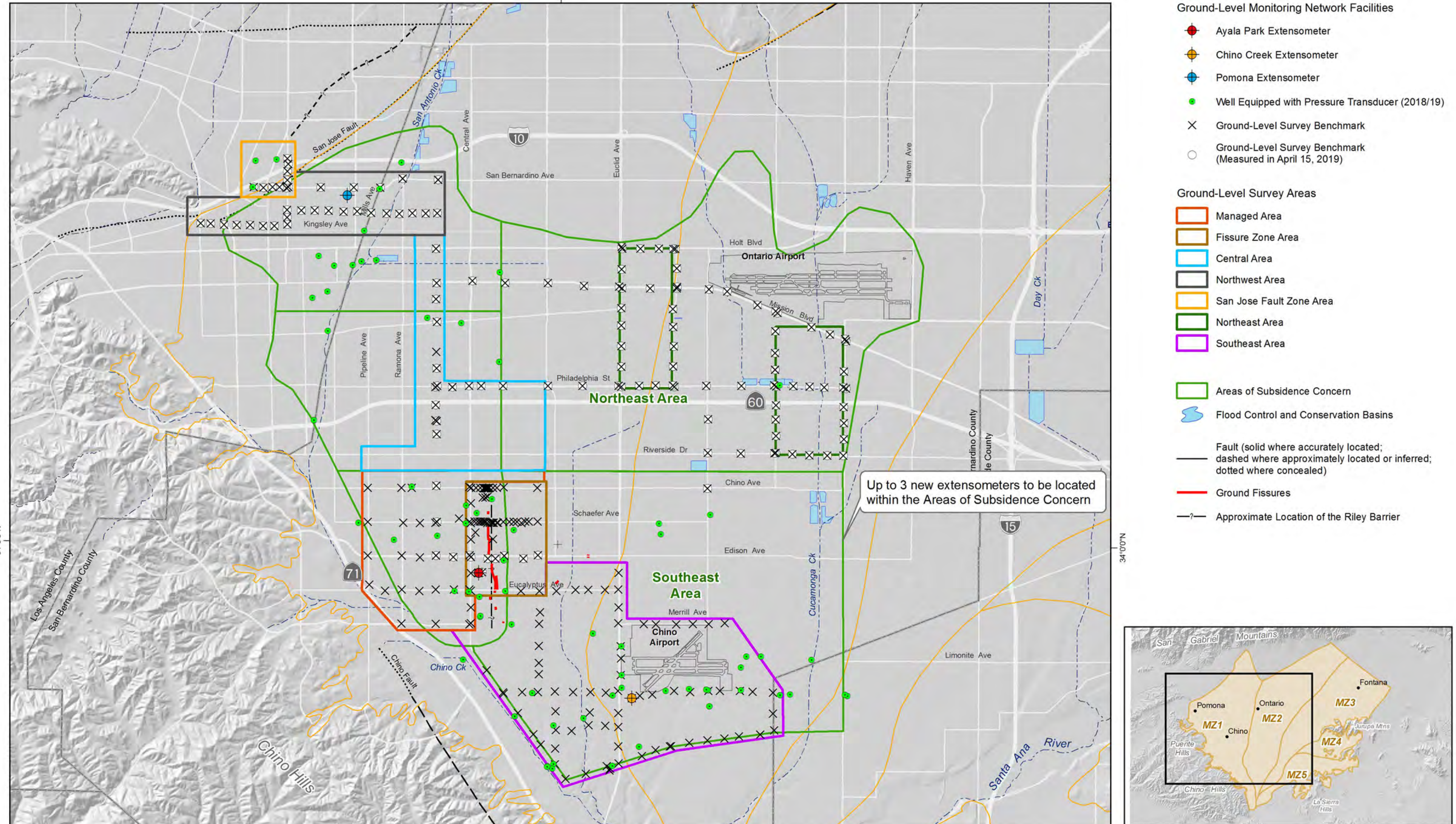
Author: SO
Date: 12/19/2019
File: 9.) Map of SWQ

Prepared for:
OBMP 2020 Update
Scoping Report

Surface-Water and Climate Monitoring

Exhibit L-5

Exhibit 10



0 1 2 3 4 5 Miles
0 2 4 6 8 Km

Prepared by:

WEI WILDERMUTH ENVIRONMENTAL, INC.

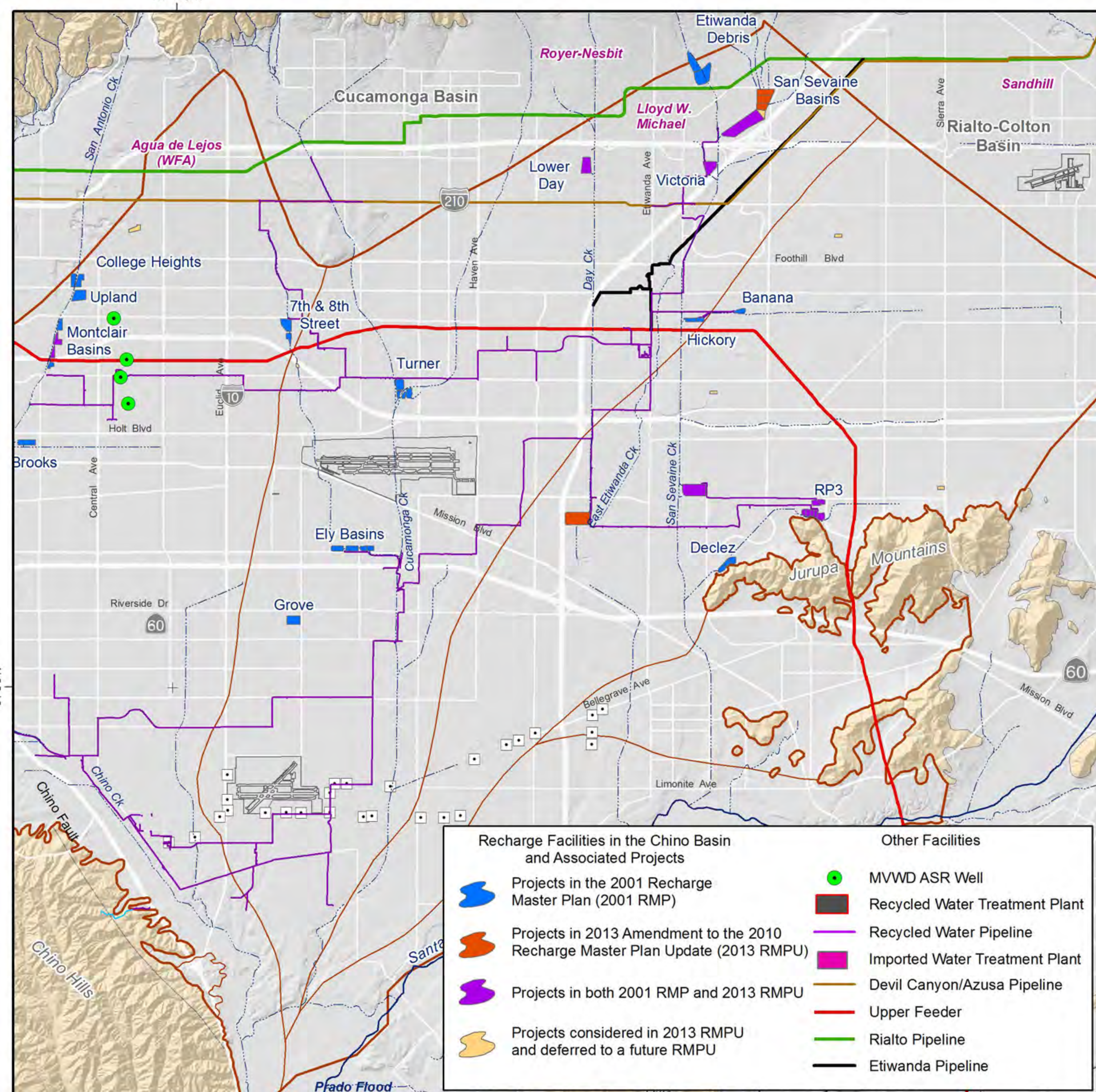
Author: NWS
Date: 12/18/2019
File: 10.) Subsidence Monitoring.mxd

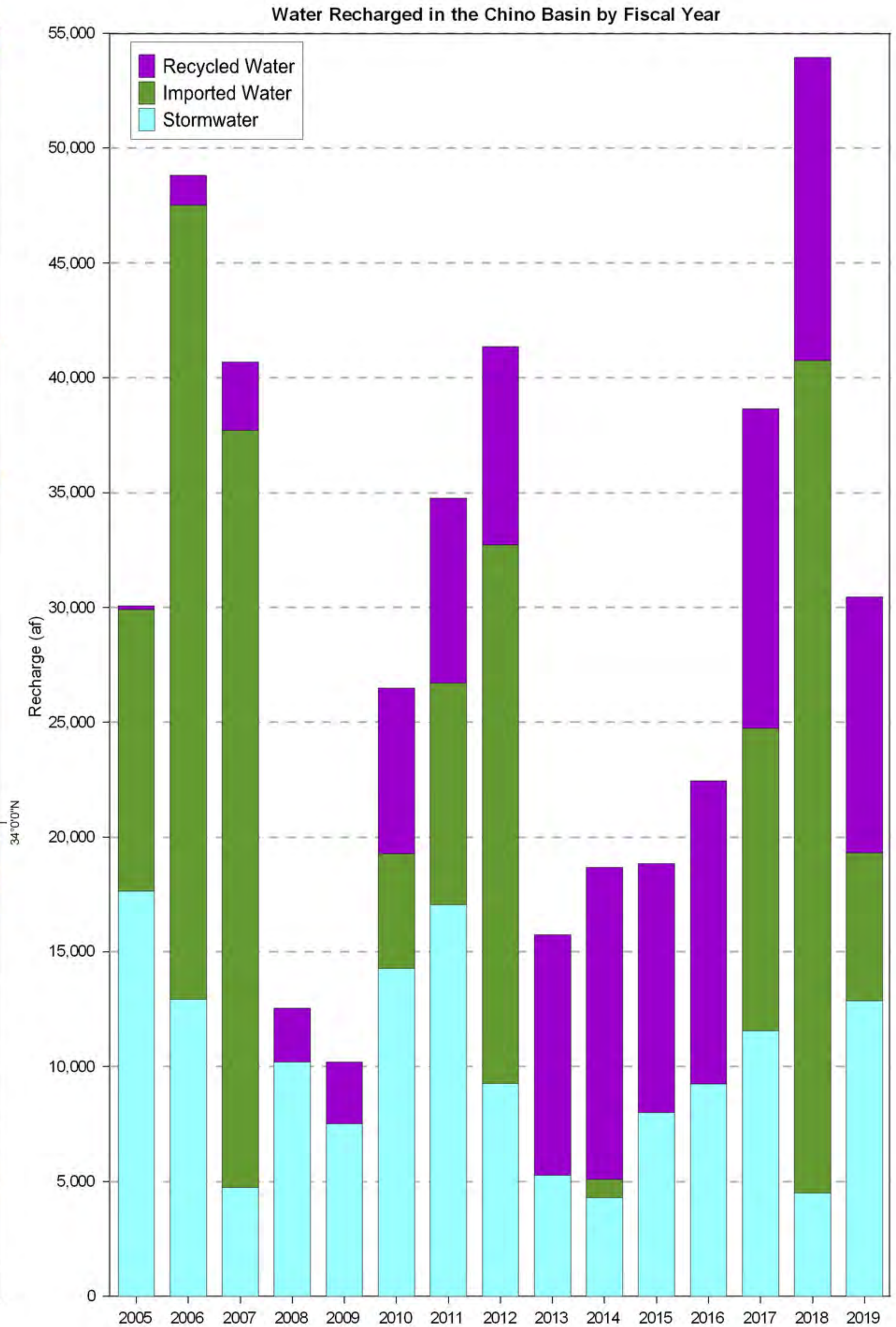
Prepared for:
OBMP 2020 Update
Scoping Report

Ground-Level Monitoring Network
Western Chino Basin

Exhibit L-6

Exhibit 11





Prepared by:

WEI
WILDERMUTH ENVIRONMENTAL, INC.

Author: CS
Date: 20181129
File: 11.) Recharge Basin + Recharge Chart

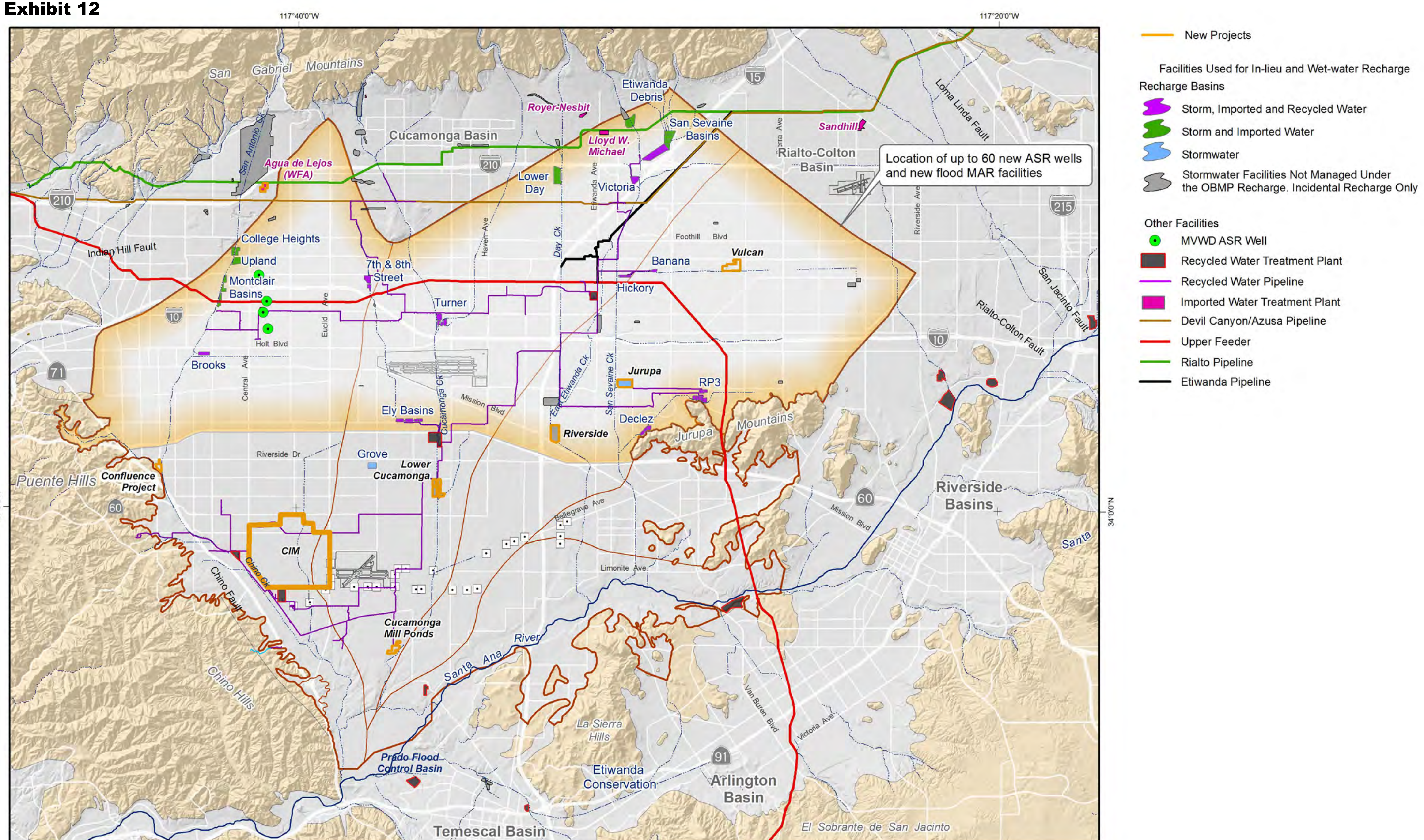
Prepared for:

2020 OBMP Update
Project Description

Groundwater Recharge in the Chino Basin

Exhibit 10

Exhibit 12



Prepared by:

WEI
WILDERMUTH ENVIRONMENTAL, INC.

Author: CS
Date: 20181129
File: 12.) New Recharge Basins

Prepared for:

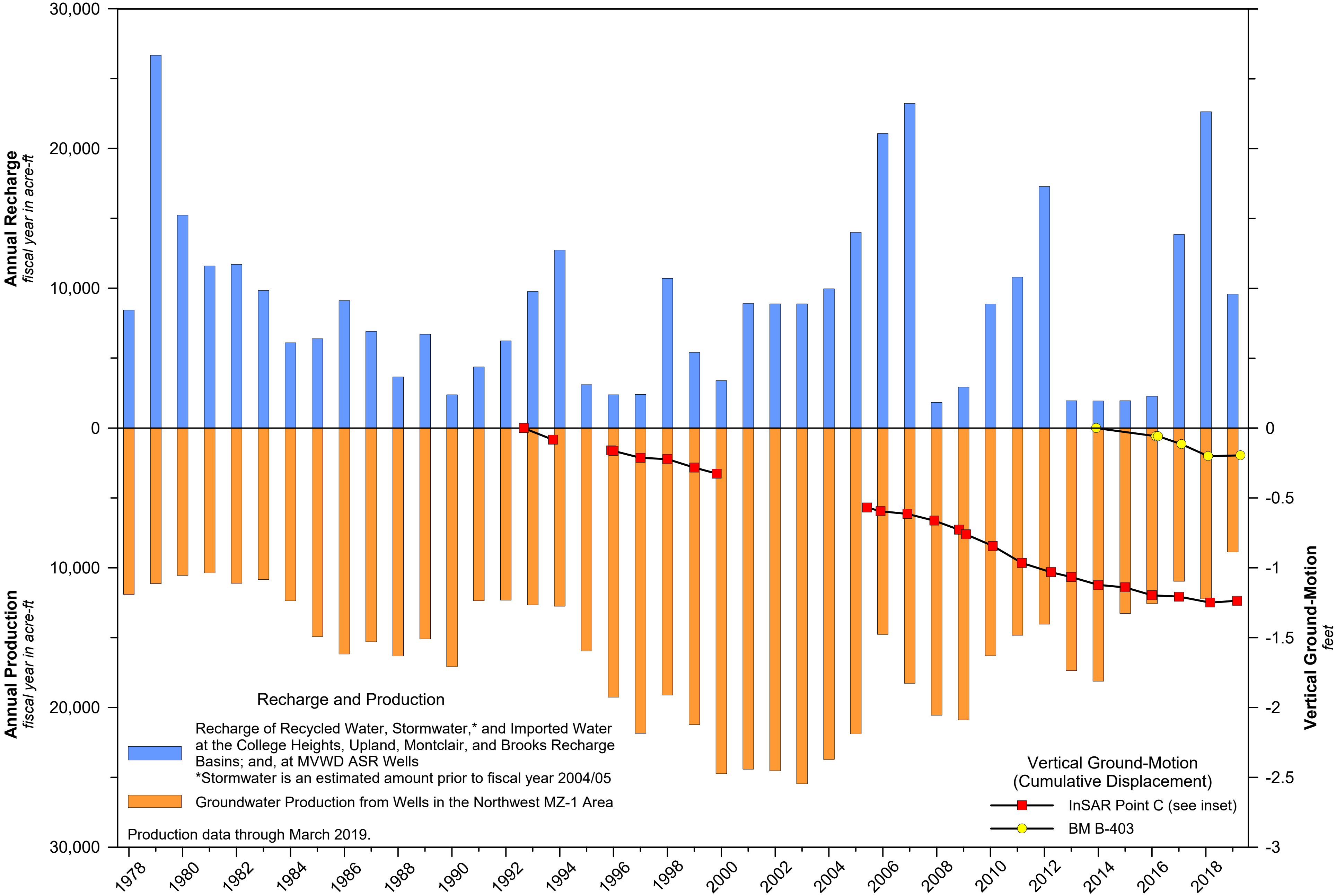
2020 OBMP Update
Project Description

CHINO BASIN WATERMASTER
Partners in Basin Management

Groundwater Recharge in the Chino Basin

Exhibit 11

Exhibit 13



WEI
WILDERMUTH ENVIRONMENTAL, INC.

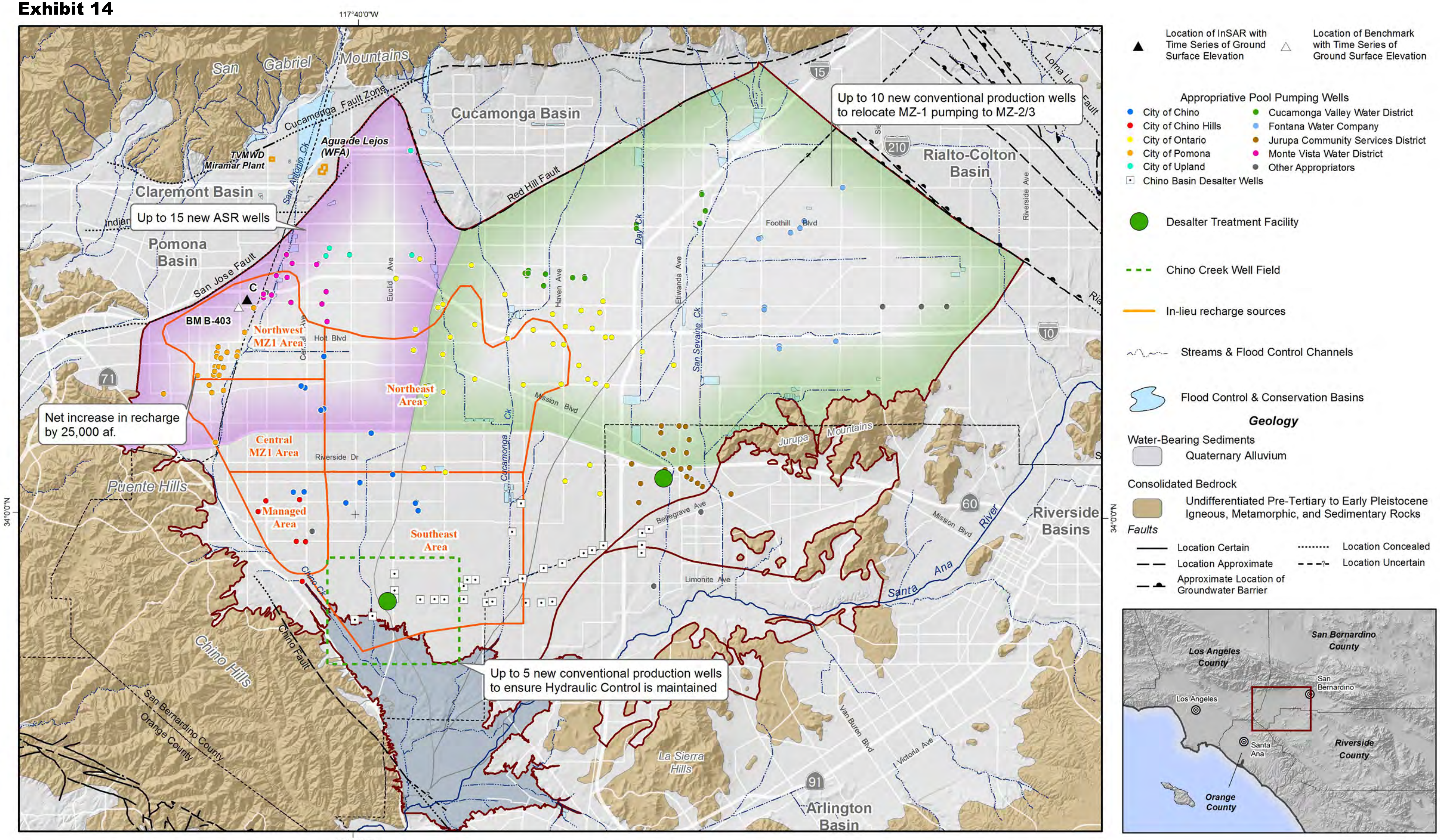
Prepared for:
OBMP 2020 Update
Scoping Report

Chino Basin Watermaster
Partners in Basin Management

Pumping, Recharge and Land Subsidence in the Northwest MZ-1 Area

Exhibit CG-3

Exhibit 14



Prepared by:

WEI WILDERMUTH ENVIRONMENTAL, INC.

Author: LG
Date: 12/20/2019
Document Name: 14.) Map of Chino Basin Concerns_new

0 1 2 3 4 5 Miles
0 2 4 6 8 KM

Prepared for:

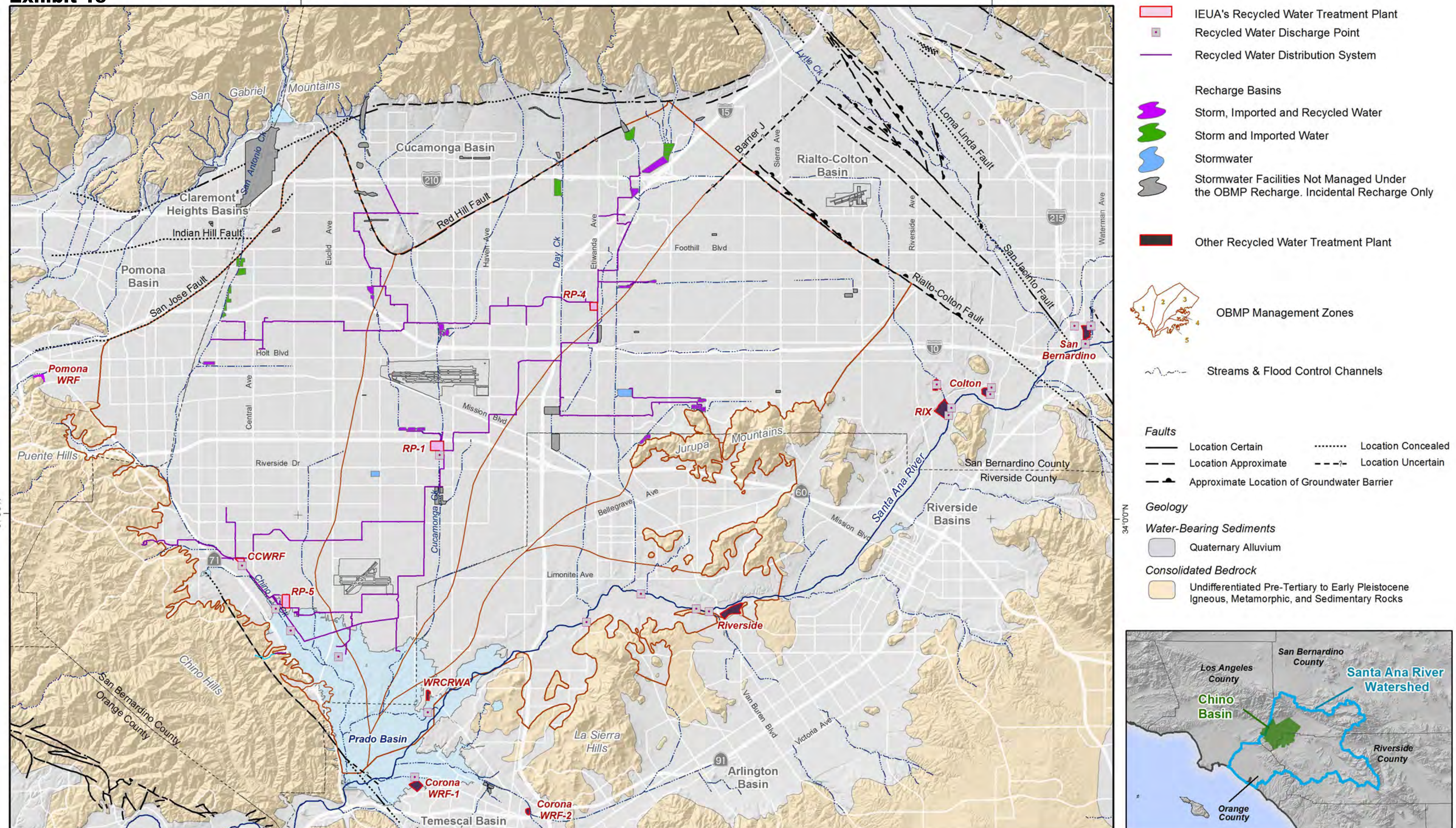
OBMP 2020 Update
Project Description

Chino Basin

OBMP Management Zones, Maximum Benefit Management Zones and Areas of Subsidence Concern

Figure 1-1

Exhibit 15



Prepared by:

WEI
WILDERMUTH ENVIRONMENTAL, INC.

Author: SO
Date: 12/20/2019
File: 15.) RW Treatment Plants.mxd

0 1 2 3 4 5 Miles
0 2 4 6 8 Km

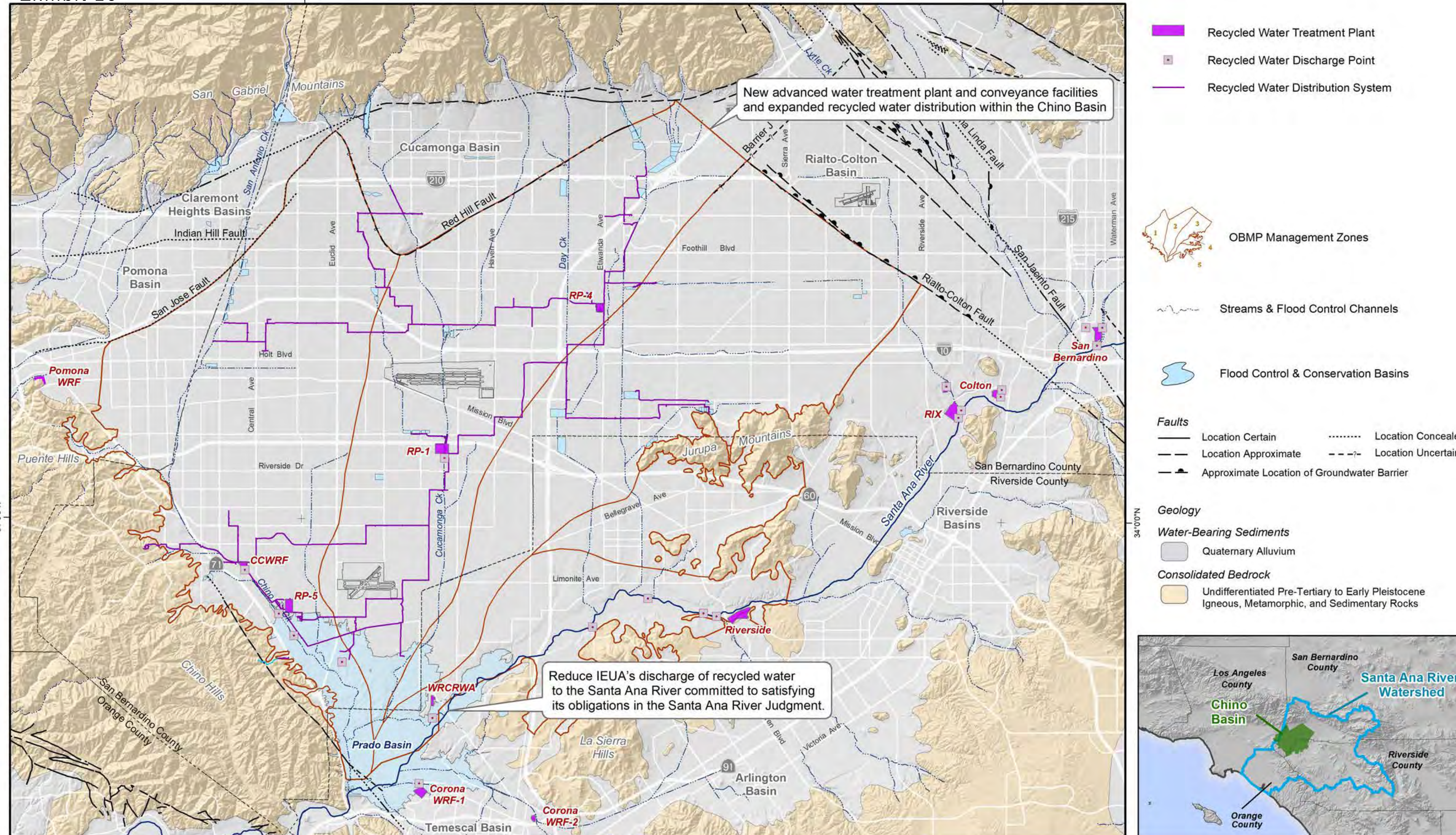
Prepared for:
OBMP 2020 Update
Scoping Report

CHINO BASIN WATERMASTER
Partners in Basin Management

Recycled Water Treatment Plants and Discharge Points

Exhibit D-1

Exhibit 16



Prepared by:

WEI
Wildermuth Environmental, Inc.

Author: SO
Date: 1/29/2020
File: 16.) New RW Treatment Plants.mxd

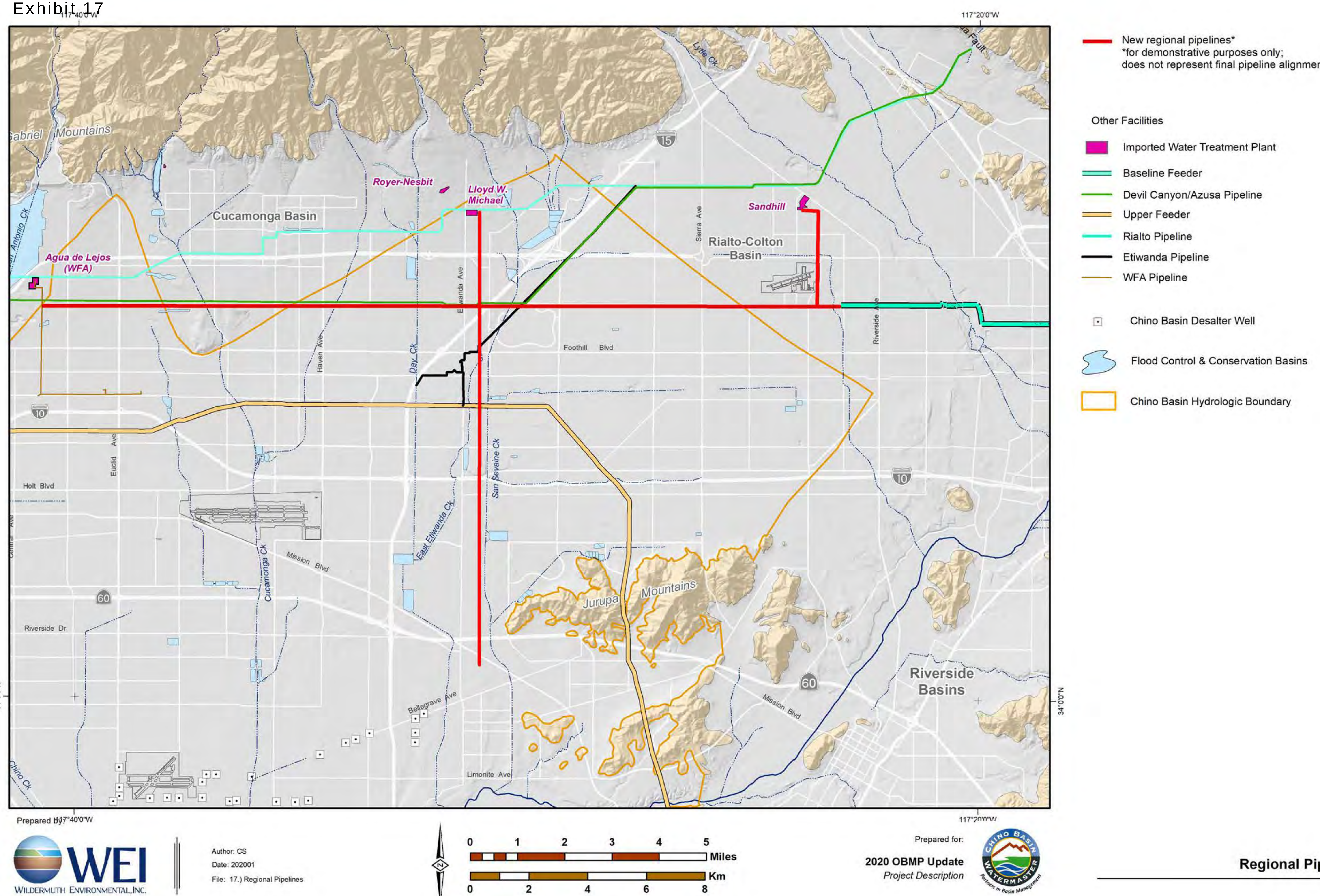
0 1 2 3 4 5 Miles
0 2 4 6 8 Km

Prepared for:
OBMP 2020 Update
Scoping Report

Chino Basin Watermaster
Partners in Basin Management

Recycled Water Treatment Plants and Discharge Points

Exhibit 17



Prepared by:

WEI
Wildermuth Environmental, Inc.

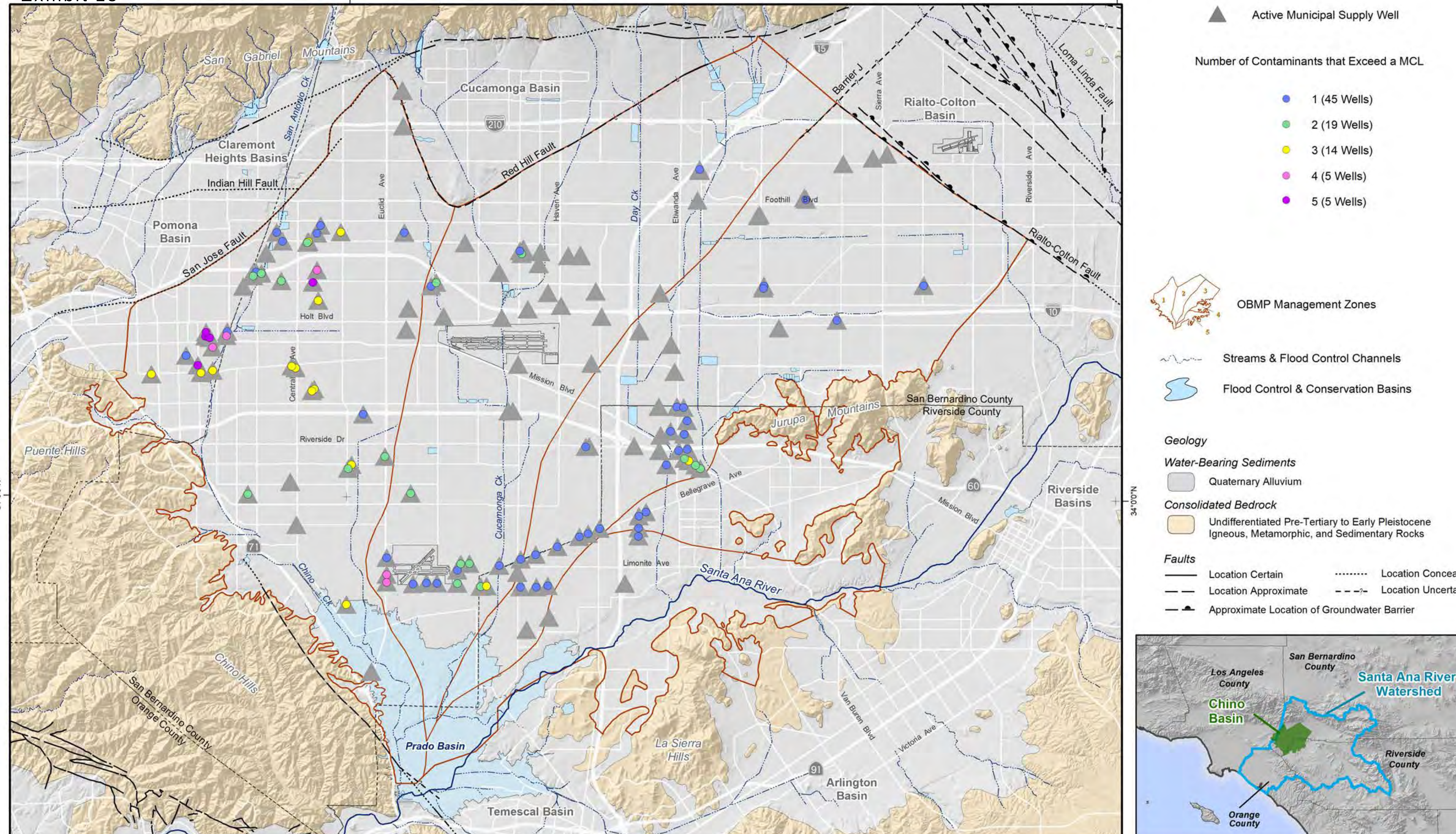
Author: CS
Date: 202001
File: 17.) Regional Pipelines

Prepared for:
2020 OBMP Update
Project Description

Chino Basin Watermaster
Partners in Basin Management

Regional Pipelines

Exhibit 18



Prepared by:

WEI
Wildermuth Environmental, Inc.

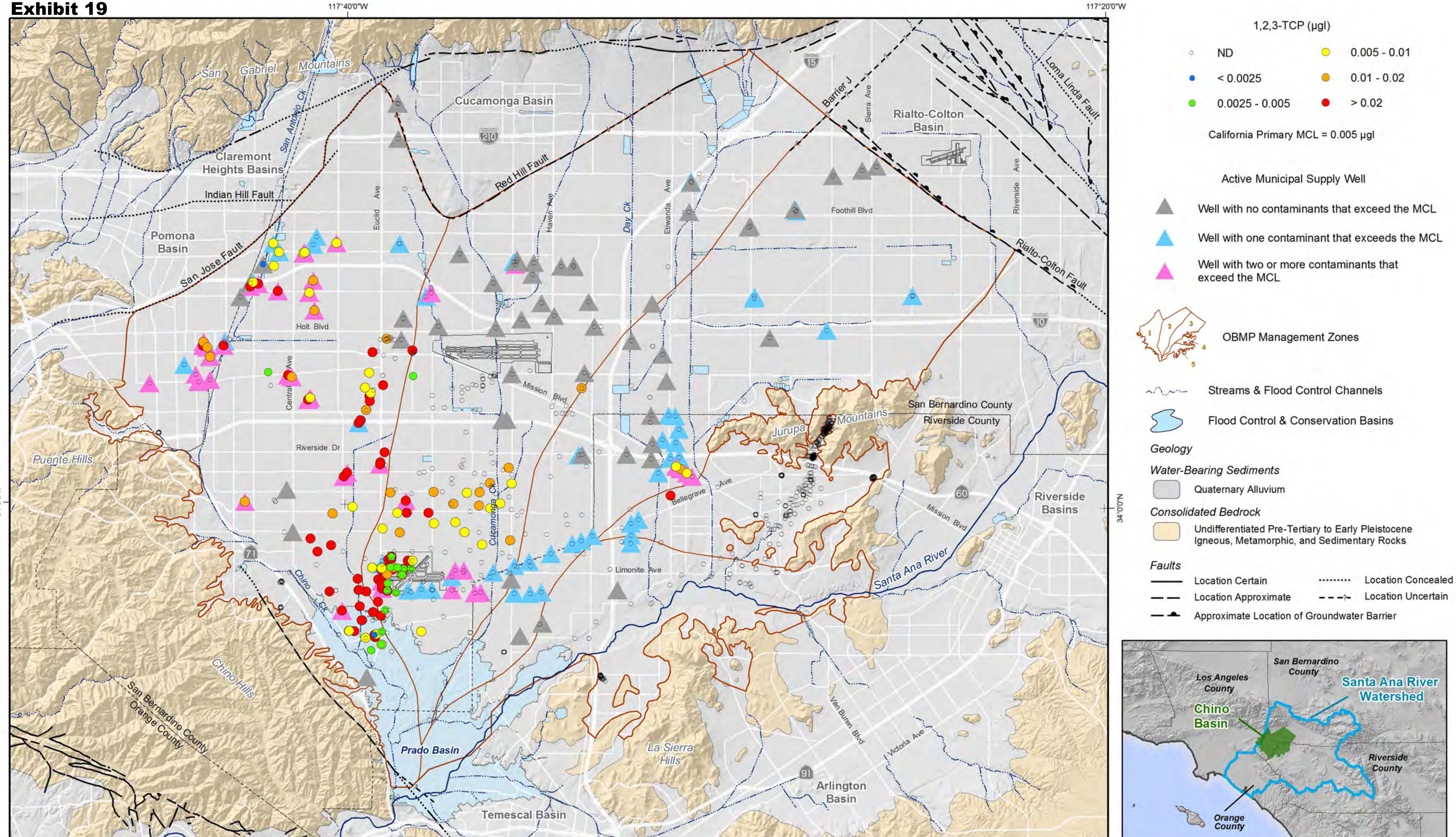
Author: CS
Date: 1/30/2020
File: 18.) Exceedance_Count.mxd

0 1 2 3 4 5 Miles
0 2 4 6 8 Km

Prepared for:
OBMP 2020 Update
Scoping Report

Occurrence of Drinking Water Contaminants in Active Municipal Supply Wells in Chino Basin
2014-2018

Exhibit 19



Prepared by:

WEI WILDERMUTH ENVIRONMENTAL, INC.

Author: CS
Date: 12/16/2019
File: 19.) 1,2,3-TCP_2014-2018.mxd

0 1 2 3 4 5 Miles
0 2 4 6 8 Km

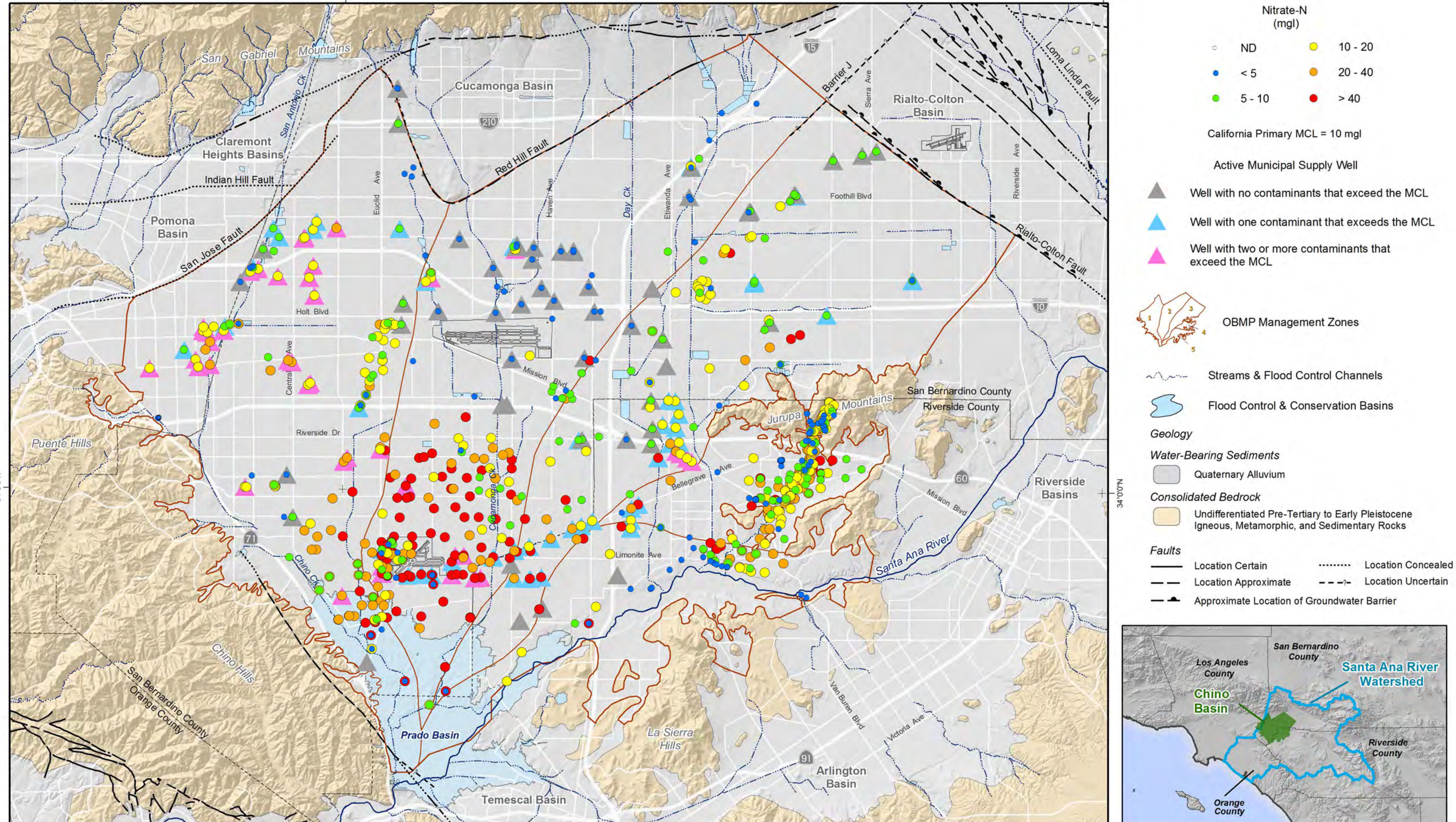
Prepared for:
OBMP 2020 Update
Scoping Report

CHINO BASIN WATERMASTER

Maximum 1,2,3-Trichloropropane (1,2,3-TCP) Concentration
2014-2018

Exhibit EF-4

Exhibit 20



Prepared by:

WEI
Wildermuth Environmental, Inc.

Author: CS
Date: 12/16/2019
File: 20.) NO3_2014-2018.mxd

0 1 2 3 4 5 Miles
0 2 4 6 8 Km

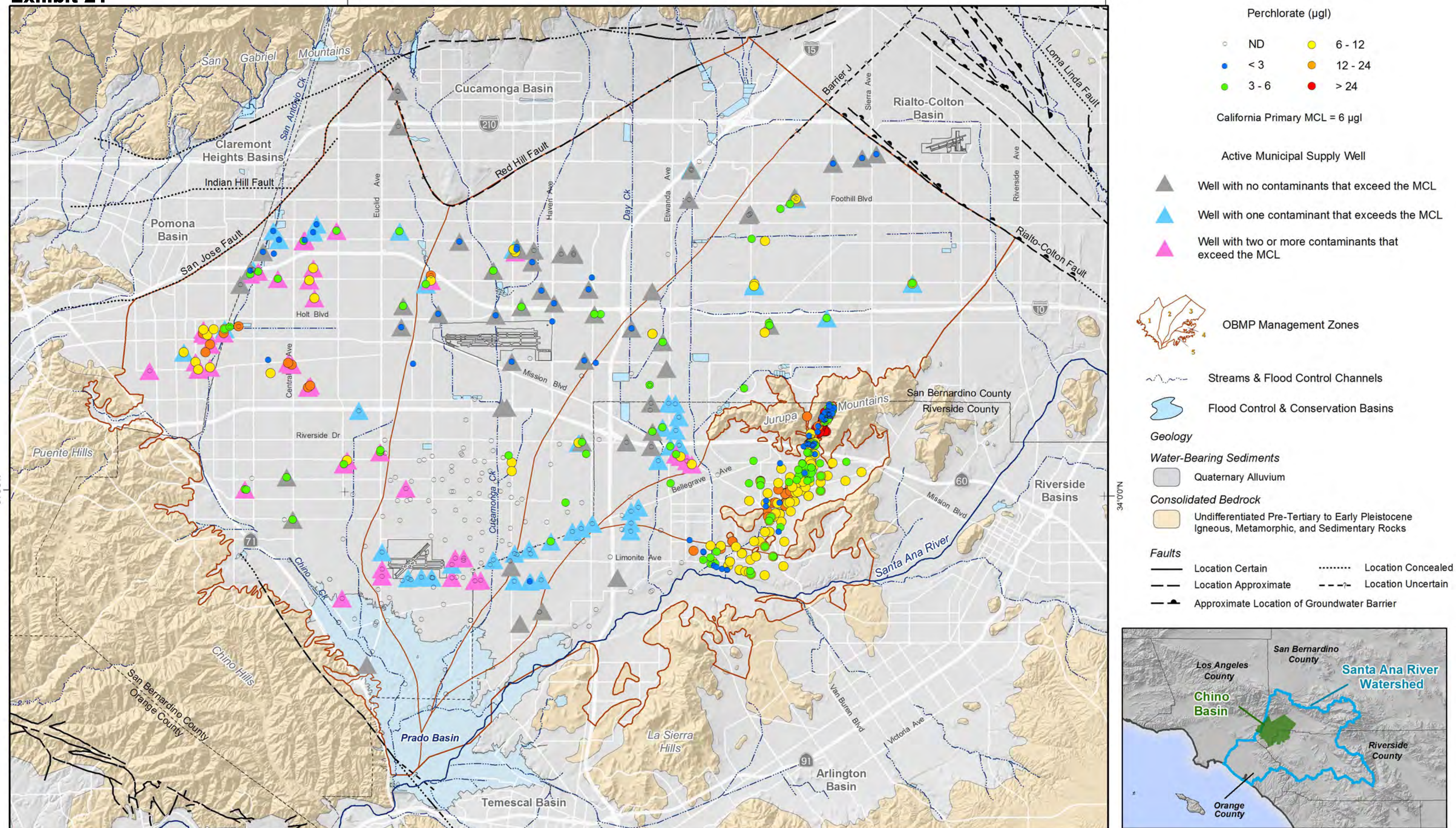
Prepared for:
OBMP 2020 Update
Scoping Report

Chino Basin Watermaster — Partners in Basin Management

Maximum Nitrate Concentration
2014-2018

Exhibit EF-3

Exhibit 21



Prepared by:

WEI WILDERMUTH ENVIRONMENTAL, INC.

Author: CS
Date: 12/16/2019
File: 21.) CLO4_MCL_2014-2018.mxd

0 1 2 3 4 5 Miles
0 2 4 6 8 Km

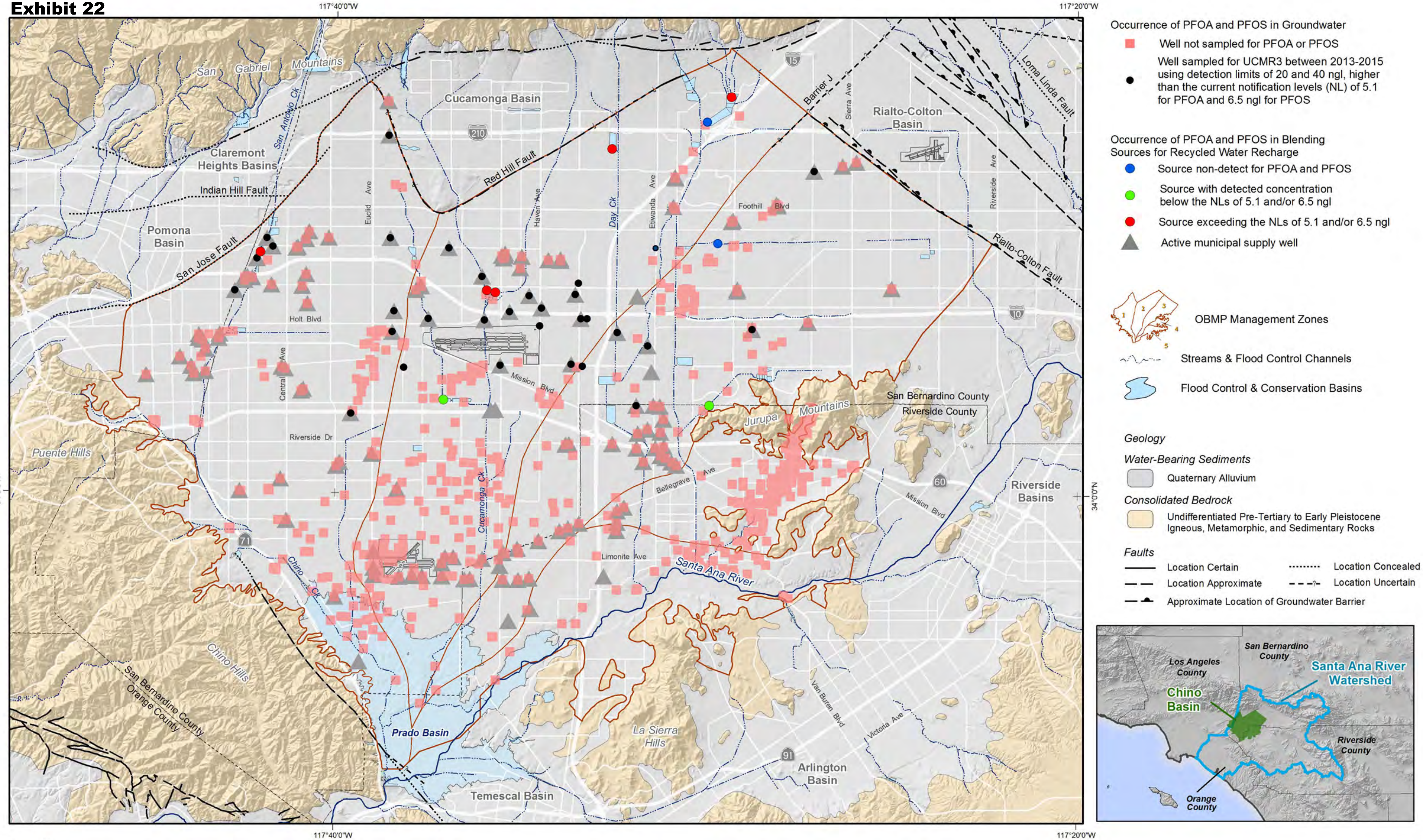
Prepared for:
OBMP 2020 Update
Scoping Report

CHINO BASIN WATERMASTER — Partners in Basin Management

Maximum Perchlorate Concentration
2014-2018

Exhibit EF-5

Exhibit 22



Prepared by:

WEI
WILDERMUTH ENVIRONMENTAL, INC.

Author: CS
Date: 12/18/2019
File: 22.) PFAS_1998-2019.mxd

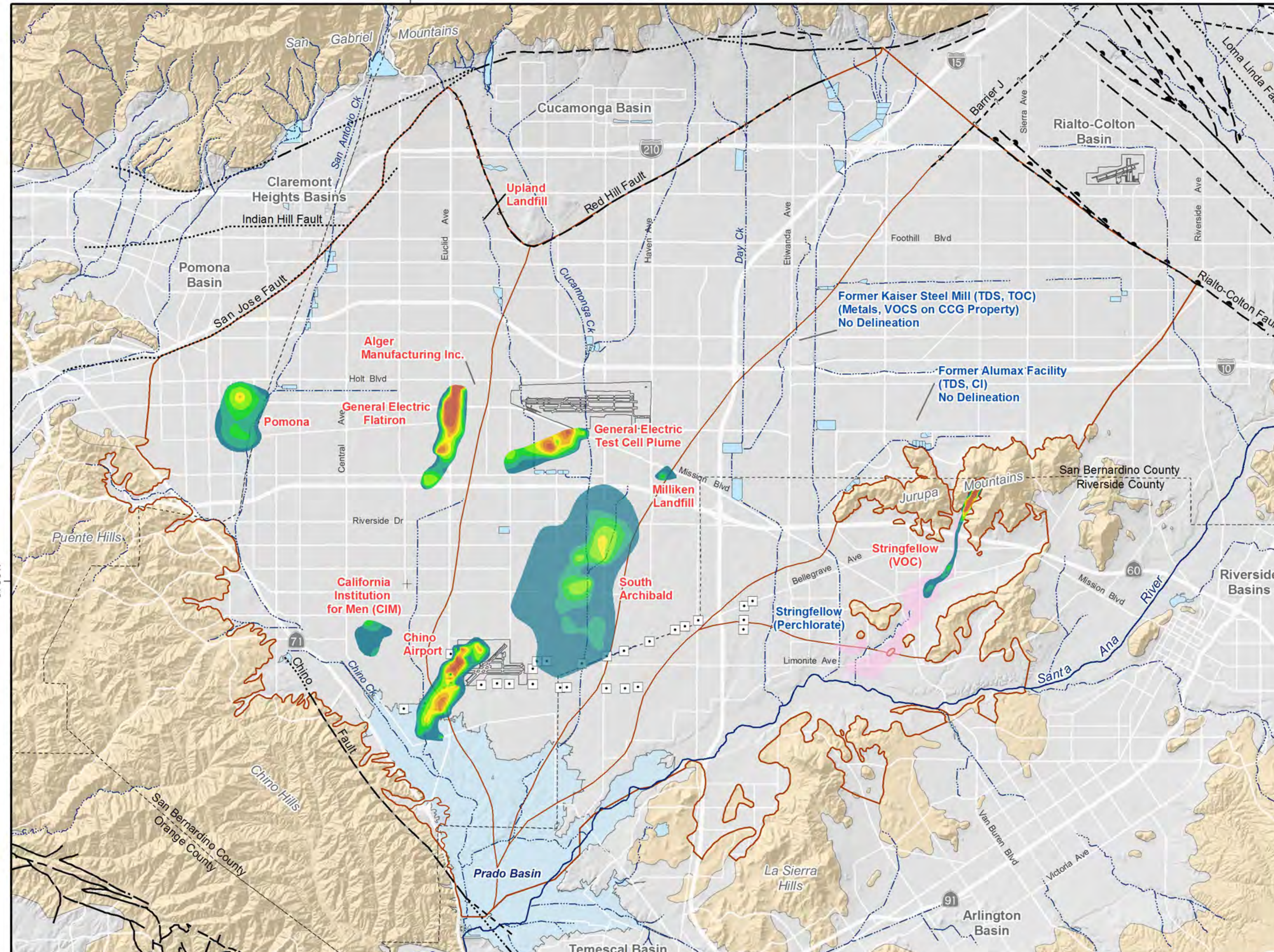
Prepared for:
OBMP 2020 Update
Scoping Report

Chino Basin Watermaster — Partners in Basin Management

PFOA and PFOS Concentrations
Through March 2019

Exhibit EF-10

Exhibit 23



VOC Concentration (µgl)

- > 0 to ≤ 5
- > 5 to ≤ 10
- > 10 to ≤ 20
- > 20 to ≤ 50
- > 50 to ≤ 100
- > 100 to ≤ 200
- > 200 to ≤ 500
- > 500

The VOC plumes shown on this map are generalized illustrations of the estimated spatial extent of TCE or PCE, based on the maximum concentration measured at wells over the five-year period of July 2013 to June 2018. The VOC plume illustrations were created with the grid function in Golden Software's Surfer 16 using an ordinary kriging interpolation model with model input parameter estimation and optimization performed by semivariogram analysis in Golden Software's Surfer 16. Interpretations of the plume extent and boundary delineation were made based on measured concentrations and local groundwater flow patterns as predicted by the Chino Basin groundwater flow model.

VOC Plumes Labeled in Red by Name

Other Plumes - Labeled in Blue by Name and Dominant Contaminant

The plumes characterized by color ramp represent Watermaster's most recent characterization of the primary contaminant of concern. The spatial extent of the VOC contamination was delineated by Watermaster based on the five-year maximum concentrations of the primary contaminant of concern for the period of July 2013 to June 2018. The primary VOC contaminant of concern in all of the plumes is TCE with the exception of the CIM plume, which is PCE. The VOC plumes associated with the Upland Landfill and the Alger Manufacturing Facility are of limited geographical extent at the scale of this map, so only their general locations are identified.

Other point-source contamination plumes in the Chino Basin include the former Kaiser Steel Mill, the former Alumax Facility, and the Stringfellow NPL Site, which are labeled by name and the primary contaminants associated with the sites. The former Kaiser Steel Mill TDS and total organic carbon (TOC) plume has not been delineated since 2008 (WEI, 2008b), and there are no plume delineations for the contamination associated with the former Kaiser Steel Mill CCG Property for metals and VOCs or the former Alumax Facility for TDS and chloride (Cl). The Stringfellow perchlorate plume shown here was delineated in the most recent remediation evaluation report for the site (Kleinfelder, 2018).

Prepared by:

WEI Wildermuth Environmental, Inc.

Author: LH
Date: 12/16/2019
File: 23.) Plumes_new_txt.mxd

0 1 2 3 4 5 Miles
0 2 4 6 8 Km

Prepared for:

2018 State of the Basin Report
Groundwater Quality

Delineation of Groundwater Contamination
Plumes and Point Sources of Concern

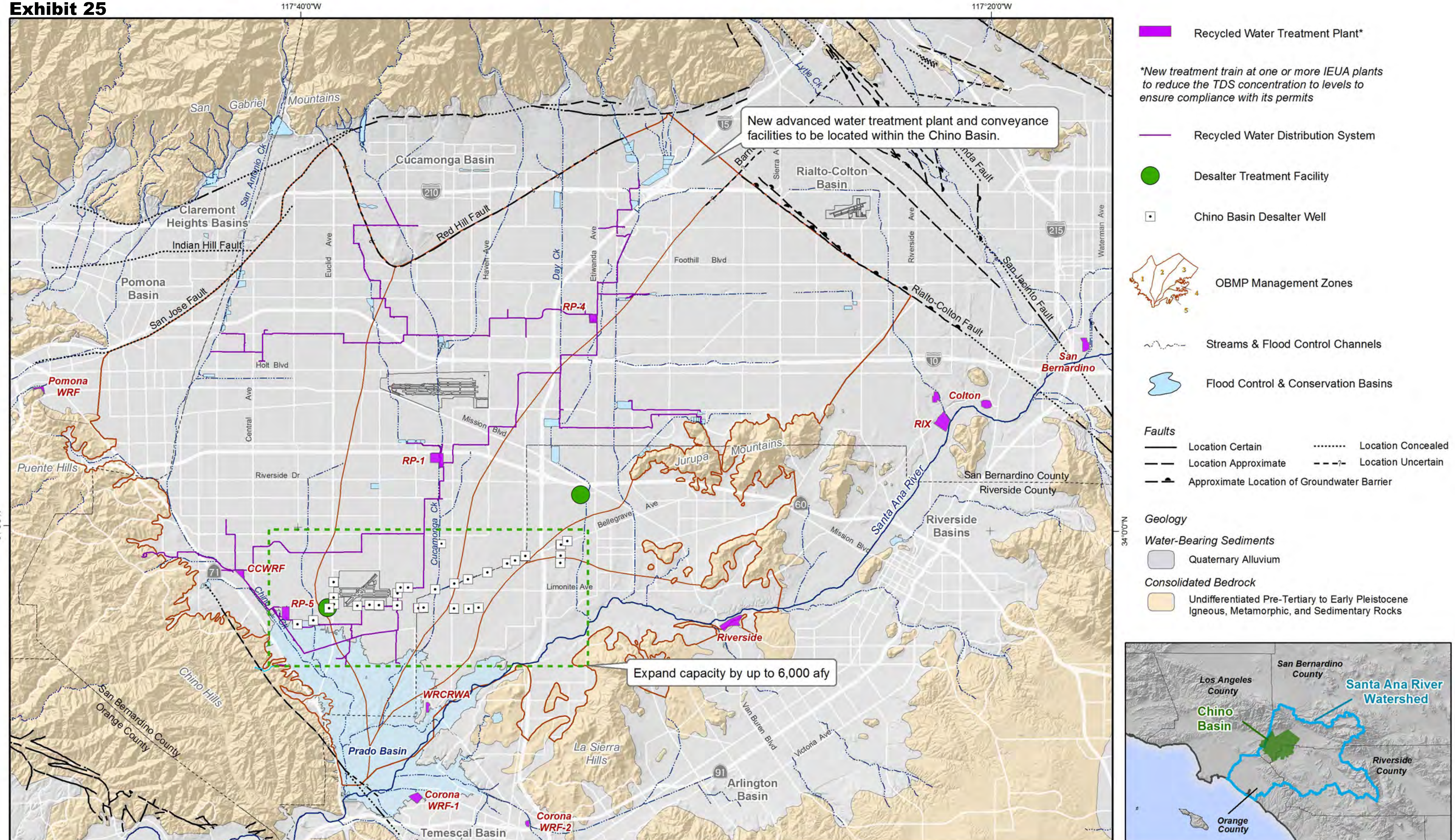
Exhibit 5-15

Exhibit 24

Exhibit 15
Limitations, Compliance Metrics, and Compliance Actions for the Chino Basin Maximum-Benefit Commitments

Source Waters with Water Quality Limitations in the Chino Basin SNMP	Water Quality Limitation	Compliance Metric	Action Limit	Required Compliance Action when Compliance Metric Exceeds the Action Limit
IEUA Recycled Water (Commitment 6)	TDS: 550 mgl	The agency-wide, 12-month running-average concentration	When the compliance metric exceeds 545 mgl for three consecutive months	Submit to the Regional Board for approval a plan and schedule to comply with the water quality limitations within 60 days.
	TIN: 8 mgl		When the compliance metric exceeds 8 mgl in any month	
Combined water sources used for managed recharge: storm, imported and recycled waters (Commitment 7)	TDS: 420 mgl Nitrate: 5 mgl	The five-year, volume-weighted running-average concentration of all sources of managed recharge	TDS: 420 mgl Nitrate: 5 mgl	Prepare a salt offset plan to mitigate salt loading from recharge greater than 420 mgl. Offsets could include desalting of recycled water or groundwater, or increased recharge of low-TDS waters.
Groundwater (Commitment 9)	TDS: 420 mgl	The volume-weighted concentration of groundwater in the Chino North GMZ (computed every three years)	TDS: 420 mgl	Reduce the TDS concentration of IEUA recycled water to comply with the maximum-benefit TDS objective or prepare a salt offset plan to mitigate loading from the use of recycled water than 420 mgl.
	Nitrate: 5 mgl		n/a	This action limit was already exceeded when the objective was established. So long as all other maximum benefit commitments are met, no compliance action is required.

Exhibit 25



Prepared by:

WEI Wildermuth Environmental, Inc.

Author: SO
Date: 12/20/2019
File: 25.) Exhibit D-1_RW Treatment Plants.mxd

Prepared for:
OBMP 2020 Update
Scoping Report

Recycled Water Treatment Plants and Discharge Points

Exhibit D-1

Exhibit 26

Exhibit 16

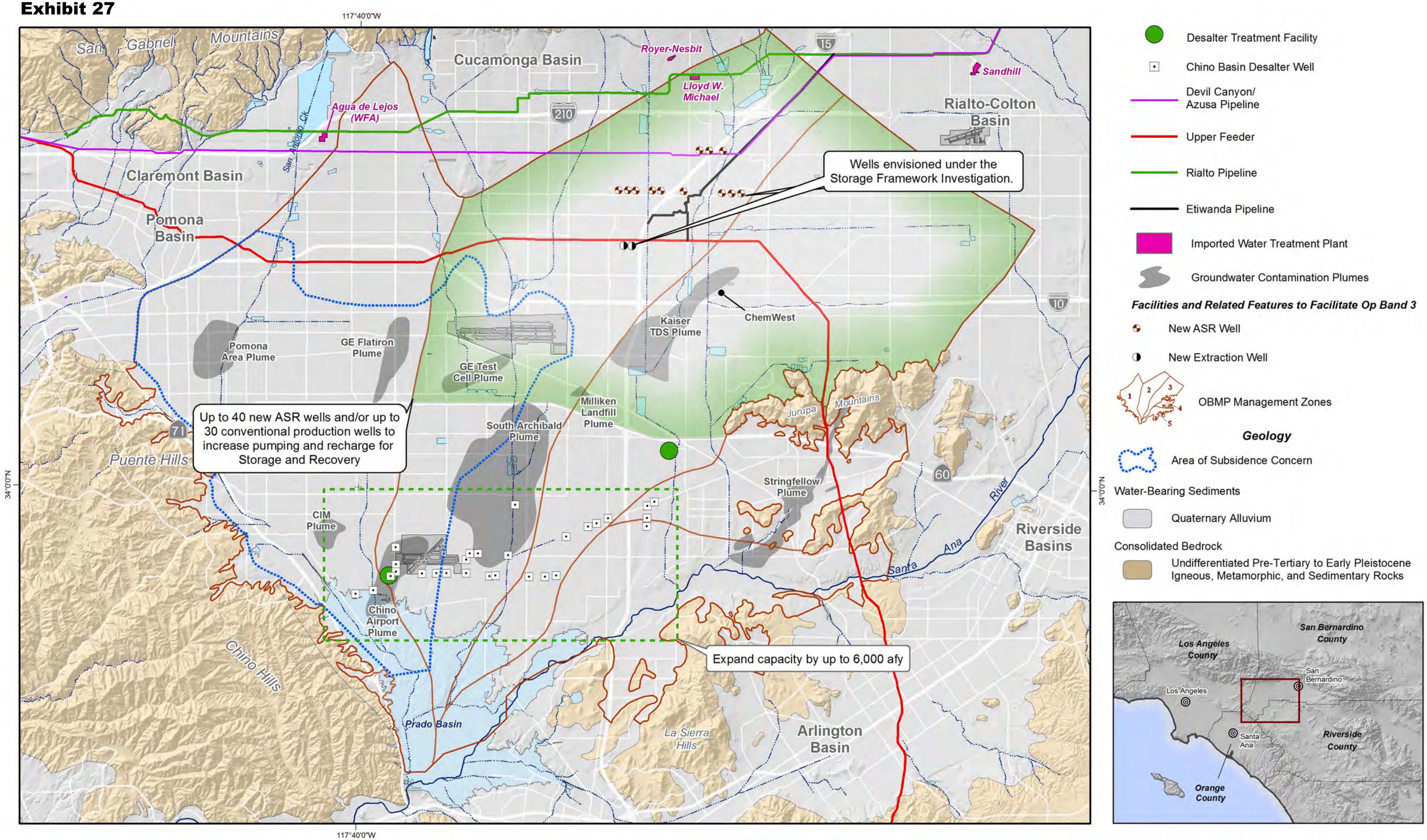
Ending Balances in Managed Storage in the Chino Basin[1]

(af)

Fiscal Year ending June 30	Appropriative Pool				Overlying Non-Agricultural Pool			Total Managed Storage by Parties	Dry Year Yield Program Storage	Total Managed Storage
	Carryover	Excess Carryover	Local Supplemental Storage	Subtotal	Carryover	Excess Carryover	Subtotal			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8) = (7) + (4)	(9)	(10) = (9) + (8)
2000	28,911	170,342		199,253	6,541	31,031	37,572	236,825	0	236,825
2001	15,940	77,907	92,813	186,660	5,301	32,330	37,631	224,291	0	224,291
2002	13,521	70,103	87,801	171,425	5,285	33,727	39,012	210,437	0	210,437
2003	18,656	71,329	81,180	171,165	6,743	36,850	43,593	214,758	7,738	222,496
2004	21,204	70,503	80,963	172,670	7,177	40,881	48,058	220,728	26,300	247,028
2005	21,289	76,080	88,849	186,218	7,227	45,888	53,115	239,333	38,754	278,087
2006	32,062	56,062	86,170	174,294	7,227	49,178	56,405	230,699	58,653	289,352
2007	34,552	50,895	83,184	168,631	7,084	51,476	58,560	227,191	77,116	304,307
2008	41,626	83,962	81,520	207,108	6,819	45,248	52,067	259,175	74,877	334,052
2009	42,795	101,908	79,890	224,593	6,672	46,600	53,272	277,865	34,494	312,359
2010	41,263	120,897	90,133	252,293	6,934	47,732	54,666	306,959	8,543	315,502
2011	41,412	146,074	98,080	285,566	6,959	49,343	56,302	341,868	0	341,868
2012	42,614	209,981	116,138	368,733	6,914	13,993	20,907	389,640	0	389,640
2013	39,413	225,068	116,378	380,859	7,073	15,473	22,546	403,405	0	403,405
2014	41,708	224,496	123,484	389,688	6,478	12,812	19,290	408,978	0	408,978
2015	40,092	239,517	127,994	407,603	6,823	12,225	19,048	426,651	0	426,651
2016	39,733	248,013	131,522	419,267	7,195	9,949	17,144	436,411	0	436,411
2017	38,340	260,682	143,552	442,575	7,226	8,292	15,519	458,093	6,315	464,408
2018	34,582	254,221	155,018	443,821	7,198	10,775	17,973	461,795	41,380	503,174
2019	38,605	279,033	166,406	484,044	7,227	12,004	19,231	503,275	45,969	549,244

1 -- WEI. (2019). Draft Storage Management Plan.

Exhibit 27



Prepared by:
WEI
Wildermuth Environmental, Inc.

Author: GAR
Date: 12/20/2019
Document Name: 27.) MZ-2_3_ASR Additions

Prepared for:
Storage Framework Investigation
Chino Basin Watermaster — Partners in Basin Management

Siting of New ASR and Extraction Wells to Facilitate Storage and Recovery Programs in Op Band 3

Figure 6-2a

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agriculture and Forestry Resources	☒ Air Quality
☒ Biological Resources	☒ Cultural Resources	☒ Energy
☐ Geology / Soils	☒ Greenhouse Gas Emissions	☐ Hazards & Hazardous Materials
☒ Hydrology & Water Quality	☐ Land Use / Planning	☐ Mineral Resources
☐ Noise	☐ Population / Housing	☐ Public Services
☐ Recreation	☐ Transportation	☒ Tribal Cultural Resources
☒ Utilities / Service Systems	☐ Wildfire	☒ Mandatory Findings of Significance

DETERMINATION (To be completed by the Lead Agency)

On the basis of this initial evaluation, the following finding is made:

☐	The proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
☐	Although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
☒	The proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
☐	The proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
☐	Although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Tom Dodson & Associates
Prepared by

February 7, 2020
Date

Lead Agency (signature)

February 7, 2020
Date

EVALUATION OF ENVIRONMENTAL IMPACTS:

1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4) "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).

5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

   a) Earlier Analysis Used. Identify and state where they are available for review.
   b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
   c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9) The explanation of each issue should identify:

   a) the significance criteria or threshold, if any, used to evaluate each question; and
   b) the mitigation measure identified, if any, to reduce the impact to less than significance.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
I. AESTHETICS: Except as provided in Public Resources Code Section 21099, would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☒	☐	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☒	☐	☐
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning or other regulations governing scenic quality?	☐	☒	☐	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☒	☐	☐

SUBSTANTIATION

I.1 Environmental Setting

The Chino Basin is one of the largest groundwater basins in Southern California and has an estimated unused storage capacity of over 1,000,000 acre-feet. The Chino Basin covers approximately 235 square miles within the Upper Santa Ana River Watershed and lies within portions of San Bernardino, Riverside, and Los Angeles counties. Exhibit 1 shows the location of the Chino Basin within the Upper Santa Ana River Watershed. The Chino Basin consists of an alluvial valley that is relatively flat from east to west, sloping from north to south at a one to two percent grade. Basin elevation ranges from about 2,000 feet adjacent to the San Gabriel foothills to about 500 feet near Prado Dam. As shown in Exhibit 2, the Chino Basin is bounded:

- on the north by the San Gabriel Mountains and the Cucamonga Basin;
- on the east by the Rialto-Colton Basin, Jurupa Hills, and the Pedley Hills;
- on the south by the La Sierra Hills and the Temescal Basin; and
- on the west by the Chino Hills, Puente Hills, and the Spadra, Pomona, and Claremont Basins.

Scenic Resources
The Chino Basin is characterized primarily by dense urbanization including residential, commercial and industrial land uses interspersed with undeveloped hilltops and distant mountain vistas. Valuable scenic resources within the service area are found sporadically on the valley floor and are visible from specific viewpoints on the valley floor. In contrast the surrounding hilltops and mountain scenic vistas are generally available from all locations within the service area, with the majestic view of the San Gabriel Mountains forming the primary background vista within the area.

San Bernardino County
The most significant visual resources in the unincorporated County are the hills and mountains, pastoral landscapes in and within view of the service area and the Prado Basin wetlands that occur in the southern portion of the Basin. The predominant scenic vistas in the service area, as identified in local General Plans (Cities of Upland, Montclair, Chino Hills, Chino, Ontario, Rancho Cucamonga, Fontana, and Counties of San Bernardino) include: views of the San Gabriel, San Bernardino and Santa Ana Mountains; Chino Hills, Jurupa Hills, Puente Hills and San Jose Hills; Tonner Canyon; Prado Basin; and the remaining pastoral

Chino farmlands. The Santa Ana River, Mill Creek (the southern portion of Cucamonga Creek), Chino Creek, the southern portion of San Antonio Creek, and the Prado Basin provide vegetated natural settings including riverine and wetland features bordering the southern edge of the service area.

The County of San Bernardino General Plan identifies State Route (SR) 71, within the unincorporated areas, as a local scenic route. In addition, the following Eligible State Scenic Highways are located within the southwestern portion of the service area: SR 142 (south of SR 71) and SR 71 (south of SR 83), and SR 91 (south of SR 71). Eligible State Scenic Highways are highways that have been identified and recommended for designation, but are not officially designated by the California Scenic Highway Mapping System (Caltrans, 2019).

Chino

The City is relatively flat as it lies on the southwestern alluvial valley floor of the Chino Basin. The City of Chino has views of the San Gabriel and San Bernardino Mountains to the north, the Jurupa Hills and Santa Ana Mountains to the east and south, respectively, and the Chino Hills to the west. The Chino General Plan does not identify specific scenic resources or local roadways of importance within its jurisdiction (City of Chino, 2010). The southern portion of the City contains pastoral agricultural areas that are slowly transitioning to suburban residential neighborhoods, some supporting commercial areas, and industrial warehouse areas. The southern-most portion of Chino is located below the 536 elevation that transitions into unincorporated territory, which constitutes the 100-year flood hazard area occupied by a mix of agricultural areas and Prado Basin, the largest riparian woodland remaining in southern California.

Chino Hills

Grass covered oak savannah woodland hillsides dominate the western and southern portion of the community and are a key aspect to the area's visual character. The hills are visible from nearly every neighborhood and major street within this community. Single-family neighborhoods penetrate into the hills in the northern half of the City, while most of the southern half is preserved as undeveloped open space. The principal component of the southern area is the Chino Hills State Park; a wilderness park of rangeland, oak woodlands, and chaparral. The Chino Hills General Plan identifies city and state eligible and officially designated scenic highways, as well as the following Exceptionally Prominent Ridgelines as important scenic resources and defers to Chapter 16 of the Municipal Code of development standards and policies regarding visual resources:

- Chino Valley Freeway (SR 71);
- Carbon Canyon Road (SR 142);
- Butterfield Ranch Road;
- Soquel Canyon Parkway;
- Chino Hills Parkway;
- Peyton Drive;
- Woodview Road;
- Eucalyptus Avenue;
- Tonner Canyon Road; and
- Grand Avenue.

Fontana

The central portion of the City of Fontana is located on an alluvial plain that gently slopes south from the San Gabriel Mountains. The northern portion of the City extends into the San Gabriel foothills and the southern portion of the City extends into the northern-edge of the Jurupa Hills. The topography varies from characteristically flat in the central portion of the City, to gently to steep sloping hillsides in the San Gabriel foothills and Jurupa Mountains to the south. Views of the mountains at the northern and southern borders of the City are an important component of the City's aesthetic quality. The Fontana General Plan discusses the importance of preserving the character of the city, downtown landmarks and view of nearby hills and mountains but does not identify specific scenic resources or local scenic roadways within its jurisdiction (City of Fontana, 2003).

Montclair
According to the Montclair General Plan, the most dominant visual element within the community is the I-10 Freeway which is elevated above existing grade for that entire segment between Mills Avenue (on the west) and Benson Avenue (on the east). The I-10 Freeway physically divides northern Montclair (which is predominately allocated to commercial uses) from the remainder of the community (which is predominately allocated for residential uses). Physical access between these segments is only available along four roadways that link north to south (i.e., Mills Avenue, Monte Vista Avenue, Central Avenue, and Benson Avenue). Many of the major roadways within the community lack a distinct visual character that promotes a sense of identity for the City, enhances the driving experience, links the roadway to adjoining uses, or softens the urban edge between the automotive and non-automotive domains (City of Montclair, 1999).

Ontario
The dominant visual characteristic in the City of Ontario is the San Gabriel Mountain range to the north. Other visual characteristics include the Jurupa Mountains and the San Bernardino Mountains to the east, the Santa Ana Mountains to the south, and Chino Hills to the southwest. Ontario is located in a highly developed, urban/suburban area with developed land uses (residential, commercial, industrial, agricultural, recreational, public, institutional, airport, and utility and transportation easements) located throughout the City. The City of Ontario is served by three freeways: I-10, I-15, and SR-60. I-10 and SR-60 traverse the northern and central portion of the City, respectively, in an east–west direction. I-15 traverses the northeastern portion of the City in a north–south direction. These segments of I-10, I-15, and SR-60 have not been officially designated as scenic highways by the California Department of Transportation. However, the Ontario General Plan identifies the Euclid Corridor and the Mission Boulevard Corridor as the primary scenic resources in the City of Ontario (City of Ontario, 2009).

Pomona
Though Pomona is largely built out, large areas of natural, undeveloped lands remain as open hillsides that are visible from all over the City. These hillsides are essential parts of Pomona's character and identity. They include Westmont Hill and Elephant Hill, remaining natural hillsides abutting S.R. 60, and master-planned areas retaining strategic "fingers" of open space such as in the Phillips Ranch development. One of the City's most valuable livability assets is its spectacular natural setting. By minimizing the visual prominence of hillside development, the City will protect features such as ridgelines, grasslands, stands of trees, and individual mature trees that contribute to Pomona's natural beauty (City of Pomona, 2014).

Rancho Cucamonga
The City of Rancho Cucamonga lies on the sloping alluvial plain of the Basin and extends up to the foothills of the San Gabriel Mountains. As the City's most prominent natural feature, the mountains run east-west and form an impressive visual background to the north. The orientation of the roadway network and elevation change (north-south) provides views of the foothills, the San Gabriel Mountains, and the San Bernardino National Forest. From the foothill area, long, open vistas to the south provide outstanding views of the Chino Basin to the Chino Hills and Santa Ana Mountains. These north-south views are particularly prominent along the straight alignments of Archibald, Haven, and Etiwanda Avenues. Additional scenic resources include the remaining stands of eucalyptus windrows, vineyards, and natural vegetation associated with flood control lands and utility corridors. Views of these resources are most prominent from the roadways and in certain locations from places of work and residences.

The Rancho Cucamonga General Plan identifies specific roadways as Special Boulevards and Historic and Special Design Streets. Special Boulevards are designated to incorporate extensive landscape setback areas, and denote where landscape and hardscape design, trails, and setback standards will be master planned and implemented and include all major arterials (divided and undivided), as well as several important secondary and collector segments. Historic and Special Design Streets are defined as streets worthy of special treatment due to their historic character and include: Etiwanda Avenue, Hillside Road, Hellman Avenue, and Foothill Boulevard (City of Rancho Cucamonga, 2010).

Upland
The City of Upland is located on the upper alluvial fan of San Antonio Creek, where the City extends into the San Gabriel Mountain foothills. The topography of the City is fairly flat sloping gradually north toward

the San Gabriel Mountains. Scenic resources in the City include Foothill Boulevard and Euclid Avenue north of Interstate 10. The Upland General Plan designates Foothill Boulevard and Euclid Avenue as scenic roadways (City of Upland, 2015).

County of Riverside
The County of Riverside has adopted General Plan Policies to deal with lighting and glare impacts to the Mount Palomar Observatory. Projects within a 45-mile radius of the Observatory must adhere to special standards relating to the use of low-pressure sodium lights. Additionally, it is policy of the County of Riverside to require that all new developments shield and direct lighting sources downward to minimize conflicts with adjacent land uses.

Eastvale
Eastvale is located in northwestern Riverside County, California, within the Inland Empire region of Southern California. Its boundaries extend from Hellman Avenue to the west (the San Bernardino county line), Philadelphia Avenue to the north (also the San Bernardino county line), the Santa Ana River and the City of Norco to the south, and Interstate 15 to the east. The City of Eastvale General Plan identifies how the design of new development also has an impact on how scenic vistas, natural areas (such as the Santa Ana River), and other desirable views are seen and appreciated. Good design ensures that desirable views are maintained and enhanced (City of Eastvale, 2012).

Jurupa Valley
Jurupa is located in northwestern Riverside County, California, within the Inland Empire region of Southern California. The topography of the City is varied with several hills along the northern boundary and center of the City. The City's quilted pattern of hills, valleys, and slopes provides a variety of scenic resources. Examples include the Jurupa Mountains, the Santa Ana River, and the Pedley Hills. The City's General Plan states the goal of preserving the City's scenic resources, including mountains, hills, ridgelines, rock outcroppings, canyons, mature trees, the Santa Ana River and floodplain, riparian corridors, agricultural fields, views of scenic resources from vista points or along scenic street or highway corridors (City of Jurupa, 2017).

I.2 Impact Discussion

Impacts are determined through assessing the project's potential to exceed significance thresholds outlined in the CEQA Guidelines Appendix G.

Except as provided in Public Resources Code Section 21099, would the project:

a. *Have a substantial adverse effect on a scenic vista?*

Project Category 1: Well Development and Monitoring Devices (PEs 1-9)
This Project Category includes the development of ASR, injection, pumping, groundwater level monitoring, and groundwater quality wells, associated well housing, as well as monitoring devices such as flow meters and extensometers. The proposed wells and monitoring devices will be installed throughout the Chino Basin.

The construction of the proposed wells and monitoring devices would require temporary ground-disturbance within the project sites. While the wells could require approximately one-half acre of disturbance, the flow meters would be installed within streams and channels to monitor surface water, and as such, the area of disturbance would be minimal. The presence of construction equipment and related construction materials would be visible from public vantage points such as open space areas, sidewalks, and streets, but it would not affect any scenic views or vistas. Construction of the proposed wells and monitoring devices would not permanently affect views or scenic vistas. Thus, impacts would be less than significant.

Once constructed, the proposed wells would occupy a footprint anticipated to be less than 20 feet by 20 feet, though in most cases, the area a well would occupy would be about 10 feet by 10 feet. Many of the wells would be enclosed in a small structure no larger than the size of a storage shed, which is designed to minimize noise from the pumps required to operate a well. As such, it is anticipated that the majority of the proposed wells would individually have small footprints and be low profile. Furthermore, the proposed extensometers would be installed within wells, and as such would not occupy any greater space than identified above, and the proposed flow meters would be located at or below ground level within streams and channels to monitor surface water. Therefore, given the small footprint required to install and operate the facilities under this Project Category, it is anticipated that any impacts to scenic vistas would be less than significant.

Project Category 2: Conveyance Facilities and Ancillary Facilities (PEs 2, 4-9)
This category includes the construction of 550,000 LF of new pipelines, booster pump stations, reservoirs and minor appurtenances whose number. The proposed conveyance facilities and ancillary facilities would be implemented throughout the entire Chino Basin.

The construction of the collection system facilities, conveyance systems and ancillary facilities would require temporary ground-disturbance almost wholly within existing roadway/public rights-of-way. The presence of construction equipment and related construction materials would be visible from public vantage points such as open space areas, sidewalks, and streets, but it would not adversely affect any scenic views or vistas. Construction of the conveyance pipelines and ancillary facilities would not permanently affect views or scenic vistas. Thus, impacts would be less than significant.

The conveyance pipelines would be placed underground and would not be visible once construction is complete. Implementation of conveyance system upgrades would not permanently alter a scenic vista, and as such, impacts to scenic vistas would be less than significant. It is anticipated that the majority of the proposed ancillary facilities would individually have small footprints and be low profile; for instance, a booster pump station would occupy less space and be no taller than a small residential home. Ancillary facilities may also include the construction of reservoirs; given that the location of such reservoirs is presently unknown, it is possible that the development of above ground, steel storage reservoirs could affect views or designated scenic vistas, particularly along hillsides where the majority of scenic views are located. The footprints of reservoirs are typically small and unobtrusive; furthermore, reservoirs are typical along hillsides due to the elevation required to distribute stored water. However, mitigation is provided below to minimize impacts to scenic vistas from the development of steel or concrete aboveground storage reservoirs.

Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands (PEs 2, 4-5, 8/9)
This Project Category includes the construction of 310 acres of new storage basins—several locations for which are within existing facilities, improvements to existing storage basin(s), 200 acres of flood MAR facilities, new MS4-compliance facilities, and expansion of the maximum storage space (safe storage capacity) to be used within the Chino Basin from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af between this range of storage. The specific locations of the storage basins are described in the Project Description above; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

The construction of new and improvement of existing storage basins at existing facilities (Jurupa Basin, Lower Cucamonga Ponds, Mills Wetlands, and Riverside Basin) would require temporary ground-disturbance within the project sites. The presence of construction equipment and materials may be visible from public vantage points, but it would not permanently affect designated scenic views or vistas. Once in operation, the proposed storage basins would be consistent with the existing setting. Furthermore, storage basins are typically flat, below the ground surface, earthen excavations with berms. Operation of the storage basins would not obstruct or alter existing views of scenic vistas. Thus, impacts would be less than significant.

Mills Wetlands are located within the City of Chino, which has not identified any specific scenic resources. However, this area represents a pastoral viewshed within the City, particularly given its proximity to the Chino Preserve, which is accessed often by the public for hiking purposes. As such, the transformation of this site to contain storage ponds would require mitigation to ensure that impacts to scenic vistas remain less than significant.

The construction of new storage basins (CIM, Vulcan Basin, and Confluence Project), MS4 facilities, and flood MAR facilities at new sites would, like those at existing facilities, require temporary ground-disturbance within the project sites that have generally been previously disturbed. The presence of construction equipment and materials would be visible from public vantage points such as open space areas, sidewalks, and streets, but it would not permanently affect designated scenic views or vistas. Operational storage basins are typically flat, below the ground surface, earthen excavations with berms. Operation of the recharge basins would not obstruct or alter existing view of scenic vistas. The project would include aboveground ancillary facilities associated with the basins. Thus, impacts would be less than significant.

The proposed expansion of the safe storage capacity from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward would not result in any visible above ground impacts. As such, no impacts to scenic vistas can result.

Project Category 4: Desalters and Water Treatment Facilities (PEs 2, 4-9)
The projects proposed under this category are: upgrades at IEUA's existing Treatment Plants (discussed in IEUA's 2017 FMP PEIR), a new advanced water treatment plant (discussed in IEUA's 2017 FMP PEIR), improvements to the WFA Agua de Lejos Treatment Plant, upgrades to the Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities. The aesthetic impacts related to the facilities thoroughly analyzed as part of the IEUA's 2017 FMP PEIR, and will not be analyzed further as part of this Initial Study.

The construction of the facilities proposed under this Project Category would require temporary ground-disturbance within existing treatment facilities. The presence of construction equipment and materials would be visible from public vantage points such as open space areas, sidewalks, and streets, but it would not permanently affect designated scenic views or vistas. Thus, impacts would be less than significant.

Upgrades and improvements to existing facilities (WFA Agua de Lejos Treatment Plant, Chino Desalters, and existing groundwater treatment facilities) would occur within developed sites already containing desalter or water treatment facilities. The upgrades would have a small footprint and would not substantially reduce the views in the area. Additionally, the additional facilities and structures required to implement the proposed upgrades would be consistent with that which exists at present at the project sites. Therefore, it is anticipated that impacts to scenic vistas in the vicinity of these project sites would be less than significant.

Similar to upgrades and improvements to existing treatment facilities, groundwater treatment facilities at well sites would occur within a site containing one or more wells. As such, the addition of groundwater treatment facilities would be consistent with that which exists at present at the well sites. Furthermore, the addition of groundwater treatment facilities at well sites upgrades would have a small footprint and would not substantially reduce the views in the area. Therefore, it is anticipated that impacts to scenic vistas in the vicinity of these project sites would be less than significant.

The location for regional groundwater treatment facilities and groundwater treatment facilities near well sites is presently unknown. Groundwater treatment facilities near well sites would occupy an area of about 0.5 acre to 2 acres, and would not consist of high-profile structures that would impede views. Much like a booster pump station, this type of facility would individually have a small footprint, be low profile, and be no taller than a residential home. Therefore, it is anticipated that impacts to scenic vistas in the vicinity of these project sites would be less than significant.

A regional groundwater treatment facility would occupy a space of no more than 20 acres, and would be visually comparable to a small warehouse structure, with various tanks and ancillary components that may or may not be enclosed within a structure. Given that the locations for facilities of this type are unknown, it is not known whether such a facility would cause a significant impact to a scenic vista. As such, mitigation to ensure that further CEQA analysis is completed prior to implementation of this type of project shall be implemented, and is provided below.

Combined Project Categories

Level of Significance Before Mitigation: Potentially Significant.

Mitigation Measures:

AES-1: ***Proposed facilities shall be designed in accordance with local design standards and integrated with local surroundings. Landscaping shall be installed in conformance with local landscaping design guidelines as appropriate to screen views of new facilities and to integrate facilities with surrounding areas.***

AES-2: ***The Mills Wetland Storage Basin Project shall be designed to include landscaping commensurate with the existing pastoral setting that exists at this site at present.***

AES-3: ***Future regional groundwater treatment facilities and other proposed facilities defined within the OBMPU at unknown locations shall either (1) Be located outside of scenic viewsheds identified in the General Plan or Municipal Code corresponding to a proposed location for a future facility, or (2) Undergo subsequent CEQA documentation to assess potential impacts from locating a future facility in an area that may contain scenic resources.***

Level of Significance After Mitigation: Less Than Significant

The implementation of Mitigation Measure (MM) **AES-1** would ensure that the proposed facilities' contribution to cumulative scenic vista impacts would be reduced to less than cumulatively considerable by meeting the local design and landscape standards. Furthermore, MM **AES-2** would ensure that the pastoral setting that presently exists at the Mills Wetland site is not lost due to implementation of the proposed storage basin project; this will reduce scenic vista impacts to a level of less than significant. The implementation of MM **AES-3** will ensure that impacts to scenic resources from the implementation of future regional groundwater treatment facility projects will be avoided or assessed further in future CEQA documentation.

b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

There are roadways classified as eligible for state scenic highway status within the Chino Basin; however, there are no officially designated scenic highways. Eligible state scenic highways include: State Route (SR) 142 south of SR 71 and SR 71 south of SR 83 (Caltrans, 2016). The most significant visual resources are the hills and mountains surrounding the Chino Basin and the pastoral landscape that occurs in the southern portion of the Chino Basin. The activity with the highest potential to conflict with local agency design guidelines is construction disturbance of the landscape. Such disturbance can be reduced to an acceptable level by landscaping or revegetating disturbed areas (pipelines, recharge basins, structural developments, composting facilities, and above ground wastewater treatment facilities) either with landscaping that is consistent with local design guidelines or with native vegetation consistent with that which occurs naturally in the area.

Project Category 1: Well Development and Monitoring Devices (PEs 1-9)

This Project Category includes the development of ASR, injection, pumping, groundwater level monitoring, and groundwater quality wells, associated well housing, as well as monitoring devices such as flow meters and extensometers. The proposed wells and monitoring devices will be installed throughout the Chino Basin.

Once constructed, the proposed wells would occupy a footprint anticipated to be less than 20 feet by 20 feet, though in most cases, the area a well would occupy would be about 10 feet by 10 feet; therefore, it is anticipated that the majority of the proposed wells would individually have small footprints and be low profile. Furthermore, the proposed extensometers would be installed within wells, and as such would not occupy any greater space than identified above, and the proposed flow meters would be located at or below ground level within streams and channels to monitor surface water. Though the precise location for future wells is presently unknown, these facilities will be located within the Chino Basin, which, as stated above, does not contain any designated State scenic highways. As such, the development of the facilities included in this Project Category would have no potential to impact scenic resources within a State scenic highway corridor. However, given that the locations for the proposed wells are largely unknown, mitigation is required to ensure that: (1) Should the removal of trees be required for a specific project, the implementing agency shall comply with the local jurisdiction's tree ordinance, and (2) The specific location selected for a well shall avoid rock outcroppings and other scenic resources. With the implementation of mitigation identified below, impacts to scenic resources would be less than significant.

Project Category 2: Conveyance Facilities and Ancillary Facilities (PEs 2, 4-9)

This category includes the construction of 550,000 LF of new pipelines, booster pump stations, reservoirs and minor appurtenances whose number. The proposed conveyance facilities and ancillary facilities would be implemented throughout the entire Chino Basin.

Conveyance pipelines would be placed underground and would not be visible once construction is complete. Though the precise location for conveyance facilities is presently unknown, these facilities will all be located below ground, and will be located within the Chino Basin, which, as stated above, does not contain any designated State scenic highways. Therefore, the development of conveyance facilities would have no potential to impact scenic resources within a State scenic highway corridor. It is anticipated that the majority of the proposed ancillary facilities would individually have small footprints. However, given that the locations of such facilities are presently unknown, it is possible that the development of ancillary facilities may impact other scenic resources such as rock outcroppings or trees. As such, mitigation is provided to ensure that: (1) Should the removal of trees be required for a specific project, the implementing agency shall comply with the local jurisdiction's tree ordinance, and (2) The specific location selected for ancillary facilities shall avoid rock outcroppings and other scenic resources or shall require a subsequent CEQA determination. With the implementation of mitigation identified below, impacts to scenic resources would be less than significant.

Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands (PEs 2, 4-5, 8/9)

This Project Category includes the construction of 310 acres of new storage basins—several locations for which are within existing facilities, improvements to existing storage basin(s), 200 acres of flood MAR facilities, new MS4-compliance facilities, and expansion of the maximum storage space (safe storage capacity) to be used within the Chino Basin from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af between this range of storage. The specific locations of the storage basins are described in the Project Description above; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

Facilities located within existing storage basins at existing facilities (Jurupa Basin, Lower Cucamonga Ponds, Mills Wetlands, and Riverside Basin) would be consistent with the existing setting. Storage basins are typically flat, below the ground surface, earthen excavations with berms. The development of such facilities would have no potential to impact scenic resources within a State scenic highway corridor because no designated State scenic highways exist within Chino Basin. Based on the location of the new storage basins and improvements to existing storage basins within existing facilities, impacts to scenic resources are anticipated to be less than significant. However, mitigation is provided to minimize impacts to any trees located within these sites that may require removal.

The construction of new storage basins (CIM, Vulcan Basin, and Confluence Project), MS4 facilities, and flood MAR facilities at new sites would, like those at existing facilities, be located within the Chino Basin, which, as stated above, does not contain any designated State scenic highways. Therefore, the development of new storage facilities would have no potential to impact scenic resources within a State scenic highway corridor. Given that the location for the new storage basins are presently known, a site reconnaissance has determined that no scenic resources exist within these known sites. However, given that the locations of the remaining facilities within this Project Category are presently unknown, it is possible that the development of storage facilities may impact other scenic resources such as rock outcroppings or trees. As such, mitigation is provided to ensure that: (1) Should the removal of trees be required for a specific project, the implementing agency shall comply with the local jurisdiction's tree ordinance, and (2) The specific location selected for a storage facility shall avoid rock outcroppings and other scenic resources or shall require a subsequent CEQA determination. With the implementation of mitigation identified below, impacts to scenic resources would be less than significant.

The proposed expansion of the safe storage capacity from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward would not result in any visible above ground impacts other than the facilities discussed in the preceding text which are intended to support this expansion. As such, no impacts to scenic resources can result.

Project Category 4: Desalters and Water Treatment Facilities (PEs 2, 4-9)
The projects proposed under this category are: upgrades at IEUA's existing Treatment Plants (discussed in IEUA's 2017 FMP PEIR), a new advanced water treatment plant (discussed in IEUA's 2017 FMP PEIR), improvements to the WFA Agua de Lejos Treatment Plant, upgrades to the Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities. The aesthetic impacts related to the facilities thoroughly analyzed as part of the IEUA's 2017 FMP PEIR, and will not be analyzed further as part of this Initial Study.

Upgrades and improvements to existing facilities (WFA Agua de Lejos Treatment Plant, Chino Desalters, and existing groundwater treatment facilities) would occur within developed sites already containing desalter or water treatment facilities, and as such, these sites are not anticipated to contain significant scenic resources. Therefore, impacts to scenic resources from implementation of upgrades and improvements to existing facilities would be less than significant.

Similar to upgrades and improvements to existing treatment facilities, groundwater treatment facilities at well sites would typically occur within a site containing one or more wells. As such, the addition of groundwater treatment facilities would be consistent with that which exists at present at the well sites, and as such, these sites are not anticipated to contain significant scenic resources. Therefore, impacts to scenic resources from implementation of improvements to existing or construction of new groundwater treatment facilities at existing well sites would be less than significant.

The location for regional groundwater treatment facilities and groundwater treatment facilities near well sites is presently unknown. Groundwater treatment facilities near well sites would occupy an area of about 0.5 acre to 2 acres, and would not typically consist of high-profile structures that would impede views. A regional groundwater treatment facility would occupy a space of no more than 20 acres, and would be visually comparable to a small warehouse structure, with various tanks and ancillary components that may or may not be enclosed within a structure. Given that the locations for facilities of this type are unknown, it is not known whether such treatment facilities would cause a significant impact to scenic resources. As such, mitigation is provided to ensure that: (1) Should the removal of trees be required for a specific project, the implementing agency shall comply with the local jurisdiction's tree ordinance, and (2) The specific location selected for a treatment facility shall avoid rock outcroppings and other scenic resources or shall require a subsequent CEQA determination. With the implementation of mitigation identified below, impacts to scenic resources would be less than significant.

Combined Project Categories

Level of Significance Before Mitigation: Potentially Significant.

Mitigation Measures:

AES-4: ***Should the removal of trees be required for a specific project, the implementing agency shall comply with the local jurisdiction's tree ordinance, municipal code, or other local regulations. If no tree ordinance exists within the local jurisdiction, and a project will remove healthy trees as defined by a qualified arborist, (1) the implementing agency***

shall replace all trees removed at a 1:1 ratio, and (2) The specific location selected for a well shall avoid rock outcroppings and other scenic resources. If this cannot be accomplished a second tier CEQA evaluation shall be completed.

AES-5: Future proposed facilities defined within the OBMPU at unknown locations shall either (1) Be located within sites that avoid rock outcroppings and other scenic resources, or (2) Undergo subsequent CEQA documentation to assess potential impacts from locating a future facility in an area that may contain scenic resources.

Level of Significance After Mitigation: Less Than Significant.

The implementation of Mitigation Measure (MM) **AES-4** would ensure that the proposed facilities' impacts to scenic resources, such as trees, are minimized to a level of less than significant. Furthermore, MM **AES-5** would ensure that future facilities are either not located within sites containing scenic resources or undergo subsequent CEQA documentation to fully analyze the impacts thereof.

c. *In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning or other regulations governing scenic quality?*

Though the presence of agriculture is still prevalent within parts of the Chino Basin, the overall Chino Basin would be characterized as "an urbanized area." As such, the following will evaluate whether the project will conflict with applicable zoning or other regulations governing scenic quality.

Project Category 1: Well Development and Monitoring Devices (PEs 1-9)
This Project Category includes the development of ASR, injection, pumping, groundwater level monitoring, and groundwater quality wells, associated well housing, as well as monitoring devices such as flow meters and extensometers. The proposed wells and monitoring devices will be installed throughout the Chino Basin.

Once constructed, the proposed wells would occupy a footprint anticipated to be less than 20 feet by 20 feet, though in most cases, the area a well would occupy would be about 10 feet by 10 feet; therefore, it is anticipated that the majority of the proposed wells would individually have small footprints and be low profile. Furthermore, the proposed extensometers would be installed within wells, and as such would not occupy any greater space than identified above, and the proposed flow meters would be located at or below ground level within streams and channels to monitor surface water. Though the precise location for future wells is presently unknown, the facilities under this Project Category will be required to comply with the local jurisdiction zoning codes and any other regulations governing scenic quality. However, mitigation measures are required to ensure compliance with the applicable zoning code, and to ensure that the proposed wells will conform with design requirements established by local jurisdictions.

Project Category 2: Conveyance Facilities and Ancillary Facilities (PEs 2, 4-9)
This category includes the construction of 550,000 LF of new pipelines, booster pump stations, reservoirs and minor appurtenances whose number. The proposed conveyance facilities and ancillary facilities would be implemented throughout the entire Chino Basin.

Conveyance pipelines would be placed underground and would not be visible once construction is complete. Though the precise location for conveyance facilities is presently unknown, these facilities will all be located below ground, and as such, will have no potential to conflict with applicable zoning or other regulations governing scenic quality.

It is anticipated that the majority of the proposed ancillary facilities would individually have small footprints. Though the locations of such facilities are presently unknown, the proposed ancillary facilities will be required to comply with the local jurisdiction zoning codes and any other regulations governing scenic quality. However, mitigation measures are required to ensure compliance with the applicable zoning code, and to ensure that the proposed ancillary facilities will conform with design requirements established by local jurisdictions.

Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands (PEs 2, 4-5, 8/9)
This Project Category includes the construction of 310 acres of new storage basins—several locations for which are within existing facilities, improvements to existing storage basin(s), 200 acres of flood MAR facilities, new MS4-compliance facilities, and expansion of the maximum storage space (safe storage capacity) to be used within the Chino Basin from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af between this range of storage. The specific locations of the storage basins are described in the Project Description above; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

Facilities located within existing storage basins at existing facilities (Jurupa Basin, Lower Cucamonga Ponds, Mills Wetlands, and Riverside Basin) would be consistent with the existing setting. Storage basins are typically flat, below the ground surface, earthen excavations with berms. Further development of storage basins at established sites, which are typically developed at grade, would have no potential to conflict with applicable zoning or other regulations governing scenic quality.

The construction of new storage basins (CIM, Vulcan Basin, and Confluence Project), MS4 facilities, and flood MAR facilities at new sites will be required to comply with the local jurisdiction zoning codes and any other regulations governing scenic quality. However, mitigation measures are required to ensure compliance with the applicable zoning code, and to ensure that the proposed storage basins, flood MAR facilities, and MS4 facilities will conform with design requirements established by local jurisdictions.

The proposed expansion of the safe storage capacity from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward would not result in any visible above ground impacts, and as such would have no potential to conflict with applicable zoning or other regulations governing scenic quality.

Project Category 4: Desalters and Water Treatment Facilities (PEs 2, 4-9)
The projects proposed under this category are: upgrades at IEUA's existing Treatment Plants (discussed in IEUA's 2017 FMP PEIR), a new advanced water treatment plant (discussed in IEUA's 2017 FMP PEIR), improvements to the WFA Agua de Lejos Treatment Plant, upgrades to the Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities. The aesthetic impacts related to the facilities thoroughly analyzed as part of the IEUA's 2017 FMP PEIR, and will not be analyzed further as part of this Initial Study.

Upgrades and improvements to existing facilities (WFA Agua de Lejos Treatment Plant, Chino Desalters, and existing groundwater treatment facilities) would occur within developed sites already containing desalter or water treatment facilities, and as such, would be consistent with the existing setting. Further development within these existing treatment facilities would have no potential to conflict with applicable zoning or other regulations governing scenic quality.

Similar to upgrades and improvements to existing treatment facilities, groundwater treatment facilities at well sites would occur within a site containing one or more wells. As such, the addition of groundwater treatment facilities would be consistent with that which exists at present at the well sites, and as such, further development at these sites is not anticipated to result in a conflict with applicable zoning or other regulations governing scenic quality.

The location for regional groundwater treatment facilities and groundwater treatment facilities near well sites is presently unknown. Groundwater treatment facilities near well sites would occupy an area of about 0.5 acre to 2 acres, and would not consist of high-profile structures that would impede views. A regional groundwater treatment facility would occupy a space of no more than 20 acres, and would be visually comparable to a small warehouse structure, with various tanks and ancillary components that may or may not be enclosed within a structure. Given that the locations for facilities of this type are unknown, the proposed ancillary facilities will be required to comply with the local jurisdiction zoning codes and any other regulations governing scenic quality. However, mitigation measures are required to ensure compliance with the applicable zoning code, and to ensure that the proposed groundwater treatment facilities will conform with design requirements established by local jurisdictions.

Combined Project Categories

Level of Significance Before Mitigation: Potentially Significant.

Mitigation Measures:

AES-6: ***OBMPU facility implementation will conform with design requirements established in the local jurisdiction planning documents, including but not limited to the applicable zoning code, except where such requirements conflict with the purpose or function of such facilities.***

AES-7: ***When OBMPU above ground facilities are constructed in the future, the local agency design guidelines for the project site shall be followed to the extent that they do not conflict with the engineering and budget constraints established for the facility.***

Level of Significance After Mitigation: Less Than Significant

The implementation of Mitigation Measure (MM) **AES-6** would ensure compliance with the applicable zoning code. Furthermore, MM **AES-7** would ensure that future facilities will conform with design requirements established by local jurisdictions.

d. *Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?*

Project Category 1: Well Development and Monitoring Devices (PEs 1-9)
This Project Category includes the development of ASR, injection, pumping, groundwater level monitoring, and groundwater quality wells, associated well housing, as well as monitoring devices such as flow meters and extensometers. The proposed wells and monitoring devices will be installed throughout the Chino Basin.

Once constructed, the proposed wells would occupy a footprint anticipated to be less than 20 feet by 20 feet, though in most cases, the area a well would occupy would be about 10 feet by 10 feet; therefore, it is anticipated that the majority of the proposed wells would individually have small footprints and be low profile. Furthermore, the proposed extensometers would be installed within wells, and as such would not occupy any greater space than identified above, and the proposed flow meters would be located at or below ground level within streams and channels to monitor surface water. Though the precise location for future wells is presently unknown, the facilities under this Project Category will be required to comply with the local jurisdiction zoning codes and any other regulations governing scenic quality. However, mitigation measures are required to ensure compliance with the applicable zoning code, and to ensure that the proposed wells will conform with design requirements established by local jurisdictions.

Project Category 2: Conveyance Facilities and Ancillary Facilities (PEs 2, 4-9)
This category includes the construction of 550,000 LF of new pipelines, booster pump stations, reservoirs and minor appurtenances whose number. The proposed conveyance facilities and ancillary facilities would be implemented throughout the entire Chino Basin.

The conveyance systems would not require nighttime lighting because they would be placed belowground. As a result, there would be no new sources of lighting as a result of conveyance facilities. No impacts related to light and glare would occur.

The ancillary facilities may include nighttime security lighting mounted to the buildings and/or structures. These new sources of lighting could result in significant light intrusion impacts onto adjacent land uses. The proposed ancillary facilities would not include aboveground structures that would include uninterrupted expanses of glass or other highly-reflective construction material. Water storage reservoirs could be a source of glare due to highly reflective materials. Therefore, mitigation is provided below to minimize lighting and glare impacts related to ancillary facilities.

Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands (PEs 2, 4-5, 8/9)
This Project Category includes the construction of 310 acres of new storage basins—several locations for which are within existing facilities, improvements to existing storage basin(s), 200 acres of flood MAR facilities, new MS4-compliance facilities, and expansion of the maximum storage space (safe storage capacity) to be used within the Chino Basin from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af between this range of storage. The specific locations of the storage basins are described in the Project Description above; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

Storage basins located within existing facilities (Jurupa Basin, Lower Cucamonga Ponds, Mills Wetlands, and Riverside Basin) would be consistent with the existing setting. Additional nighttime security lighting could be included with at these existing facilities; however, due to these facilities being located on relatively flat terrain, potential lighting impacts would be less than significant. The potential for glare from proposed storage basins containing water to affect specific residences and/or viewsheds for short periods of time is low and would not introduce substantial new sources of glare, and is therefore, less than significant.

Similar to the construction of storage basins within existing facilities, the construction of new storage basins (CIM, Vulcan Basin, and Confluence Project), MS4 facilities, and flood MAR facilities at new sites may also require additional nighttime security lighting; however, because these facilities will be located on relatively flat terrain, potential lighting impacts would be less than significant. The potential for glare from proposed storage basins containing water to affect specific residences and/or viewsheds for short periods of time is low and would not introduce substantial new sources of glare, and is therefore, less than significant.

The proposed expansion of the safe storage capacity from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward would not result in any visible above ground impacts, and as such would have no potential to result in any light or glare impacts.

Project Category 4: Desalters and Water Treatment Facilities (PEs 2, 4-9)
The projects proposed under this category are: upgrades at IEUA's existing Treatment Plants (discussed in IEUA's 2017 FMP PEIR), a new advanced water treatment plant (discussed in IEUA's 2017 FMP PEIR), improvements to the WFA Agua de Lejos Treatment Plant, upgrades to the Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities. The aesthetic impacts related to the facilities thoroughly analyzed as part of the IEUA's 2017 FMP PEIR, and will not be analyzed further as part of this Initial Study.

Upgrades and improvements to existing facilities (WFA Agua de Lejos Treatment Plant, Chino Desalters, and existing groundwater treatment facilities) would occur within developed sites already containing desalter or water treatment facilities that contain lighting. The facilities are also located within an urban area developed with residential and commercial uses. Implementation of the proposed improvements could result in new exterior nighttime lighting for operational and security purposes within the existing treatment facilities. The increase in lighting within existing treatment facilities could result in spill over lighting onto residential and commercial uses. Therefore, mitigation to address the increased lighting is provided below.

Similar to upgrades and improvements to existing treatment facilities, groundwater treatment facilities at well sites would occur within a site containing one or more wells. Groundwater treatment facilities at well sites will have additional lighting beyond that which currently exists at each well site, and therefore to protect nearby light sensitive land uses from direct light and glare from new lighting, mitigation to address the increased lighting is provided below.

The proposed new regional groundwater treatment facilities and groundwater treatment facilities near well sites would require additional lighting. These facilities are not of a type that would be constructed within materials that would cause substantial glare, and as such no impacts are anticipated thereof. New exterior nighttime lighting for operational and security purposes is anticipated as a result of the development of these projects. The increase in lighting that would result from new regional groundwater treatment facilities and groundwater treatment facilities near well sites could result in spill over lighting onto residential and commercial uses. Therefore, mitigation to address the increased lighting is provided below.

Combined Project Categories

Level of Significance Before Mitigation: Potentially Significant

Mitigation Measures:

AES-8: ***Future OBMPU projects shall implement the following:***

- ***Use of low-pressure sodium lights where security needs require such lighting to minimize impacts of glare; Projects within a 45-mile radius of the Mount Palomar Observatory and located within Riverside County must adhere to special standards set by the County of Riverside relating to the use of low-pressure sodium lights.***
- ***The height of lighting fixtures shall be lowered to the lowest level consistent with the purpose of the lighting to reduce unwanted illumination.***
- ***Directing light and shielding shall be used to minimize off-site illumination.***
- ***No light shall be allowed to intrude into sensitive light receptor areas.***

Level of Significance After Mitigation: Less Than Significant

The implementation of Mitigation Measure (MM) **AES-8** would ensure that light and glare impacts from future structures associated with the OBMPU are minimized to a level of less than significant.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
II. AGRICULTURE AND FORESTRY RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
a) Convert Prime Farmland, Unique Farmland or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☒	☐	☐
b) Conflict with existing zoning for agricultural use or a Williamson Act contract?	☐	☒	☐	☐
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☒	☐	☐
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☒	☐

SUBSTANTIATION

This section describes the environmental setting for agriculture and forestry resources, as well as applicable regulatory framework, potential impacts associated with implementation of the proposed OBMPU, and mitigation measures to reduce those impacts to less than significant where required. Much of the information presented below is abstracted from the 2017 Facilities Masters Plan Program Environmental Impact Report with appropriate updates.

II.1 Environmental Setting

Regional Agriculture

According to the County's *2017 San Bernardino County Annual Crop Report 2017*, San Bernardino County had approximately 1,429,360 acres of non-irrigated and irrigated important farmlands in 2017, but has continued to see a decline in farmlands over the years adjacent to existing urban areas. Specifically, San

Bernardino County experienced significant urban growth since 2010, ranking tenth in the state for urban growth. Approximately 1,440 acres have been converted from agricultural to nonagricultural uses in San Bernardino County between 2010 and 2012. However, in 2017 San Bernardino County had 1,429,360 acres of irrigated and non-irrigated important farmland, for an increase of 42,025 acres over 2016.

According to the *2017 Annual Crop Report for San Bernardino County*, the gross value of agricultural production in San Bernardino County for 2017 totaled approximately $465 million, which equates to an increase of about 1.8 percent over 2016 production, primarily due to an increase in acreage used for livestock and poultry and nursery products. Despite continued conversion of agricultural land in the County to business and residential development, agriculture is still an integral component of the economy in San Bernardino County. Of this $465 million total, $366,013,000, or almost 80 percent of the agricultural value was produced in the southern portion of the Chino Basin.

The Chino Basin is located within the southwestern portion of the county, within an area historically containing significant agricultural resources; primarily dairy ranches located in the Chino, Chino Hills, and south Ontario areas of the Basin. Some of the historic dairy and agricultural operations in the Chino Basin have been converted to urban uses during the housing and industrial warehousing construction boom in the early part of this decade. **Figure II-1** shows the agriculture and forest land zones within San Bernardino County.

There are several parcels of land designated by the California Department of Conservation as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance within the southern portion of the Chino Basin, particularly in the southern portions of Ontario and Chino. Most of the Prime Farmland is located within the City of Chino, the City of Ontario, and Prado Regional Park area, which is located in the southwestern portion of the program area. California Department of Conservation (DOC) Important Farmland designations within the service area are shown on **Figure II-2**. Note the sparsity of important agricultural lands within the northern portion of the Chino Basin, north of the 60 Freeway.

Forestry

The San Bernardino National Forest is located just north of Upland, Rancho Cucamonga, Fontana, and portions of the unincorporated area San Bernardino County. The Chino Basin borders the San Bernardino National Forest, but it does not overlap with the National Forest (see Figure II-1). Public Resources Code (PRC) para. 12220(g) defines “Forest Land” as “land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits. Under this definition certain woodland areas within the Prado Basin may qualify as “forest land.”

II.2 Regulatory Framework

State

California Farmland Mapping and Monitoring Program

The California Department of Conservation, under the Division of Land Resource Protection, has established the Farmland Mapping and Monitoring Program (FMMP). The FMMP monitors the conversion of the state’s farmland to and from agricultural use. The map series identifies eight classifications and uses a minimum mapping unit size of 10 acres. The FMMP also produces a biannual report on the amount of land converted from agricultural to non-agricultural use. The FMMP maintains an inventory of state agricultural land and updates its “Important Farmland Series Maps” every two years (DOC, 2016b). Important farmlands are divided into the following five categories based on their suitability for agriculture:

> **Prime Farmland.** Prime Farmland is land with the best combination of physical and chemical characteristics able to sustain long-term production of agricultural crops. This land has produced irrigated crops at sometime within the four years prior to the mapping date.

Farmland of Statewide Importance. Farmland of Statewide Importance is land that meets the criteria for Prime Farmland but with minor shortcomings such as greater slopes or lesser soil moisture capacity.

Unique Farmland. Unique Farmland has even lesser quality soils and produces the state's leading agricultural crops. This land is usually irrigated, but also includes non-irrigated orchards and vineyards.

Farmland of Local Importance. Farmland of Local Importance is land that is important to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee.

Grazing Land. Grazing Land is land on which the existing vegetation is suited to the grazing of livestock.

Williamson Act

The California Land Conservation Act of 1965, also known as the Williamson Act, is designed to preserve agricultural and open space lands by discouraging their premature and unnecessary conversion to urban uses. Williamson Act contracts, also known as agricultural preserves, create an arrangement whereby private landowner's contract with counties and cities to voluntarily restrict their land to agricultural and compatible open-space uses. The Chino Basin has no County Williamson Act contracts in place (DOC, 2016).

California Public Resources Code Section 12220(g)

The California Public Resources Code defines "forest land" under section 12220(g) as land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits. Projects are subject to this code if there are any potentially significant changes to existing areas zoned as forest land.

California Public Resources Code Section 4526

The California Public Resources Code defines "timberland" as land, other than land owned by the federal government and land designated by the board as experimental forest land, which is available for, and capable of, growing a crop of trees of any commercial species used to produce lumber and other forest products, including Christmas trees. Commercial species shall be determined by the board on a district basis after consultation with the district committees and others. Projects may have significant impacts to timberland if the project conflicts with existing zoning.

California Government Code Section 51104(g)

The California Government Code defines "timberland production zone" under Section 51104(g) as an area which has been zoned pursuant to Sections 51112 or 51113 and is devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses, as defined in subdivision (h) of the Government Code 51104. Projects may significantly impact timberland resources if the project conflicts with existing areas zoned for timberland production.

California Land Evaluation and Site Assessment Model

The Land Evaluation and Site Assessment (LESA) is a point-based approach for rating the relative importance of agricultural land based upon specific measurable features.

The California LESA Model was developed to provide lead agencies with an optional methodology to ensure that potentially significant effects on the environment of agricultural land conversions are quantitatively and consistently considered in the environmental review process (Public Resources Code Section 21095), including in CEQA reviews.

The California Agricultural LESA Model evaluates measures of soil resource quality, a given project's size, water resource availability, surrounding agricultural lands, and surrounding protected resource lands. For a given project, the factors are rated, weighted, and combined, resulting in a single numeric score. The project score becomes the basis for making a determination of a project's potential significance (DOC, 2016).

Local

The Chino Basin area encompasses multiple jurisdictions including unincorporated areas of San Bernardino County and seven incorporated cities. The County of San Bernardino, City of Chino, and City of Ontario contain goals and policies regarding farmland preservation.

San Bernardino County General Plan
The General Plan identifies areas of prime and non-prime agricultural soils and operations to establish areas where agriculture and compatible uses may coexist with development, identified as Agriculture Land Use Zoning Districts, which include the following (County of San Bernardino, 2007):

- Areas with limited infrastructure facilities and where limited public improvements will be planned or developed in the next 20 years.

The Conservation Element of the San Bernardino General Plan includes the following goal and policy regarding agriculture that may be applicable to all project activities within the Chino Basin.

Goal CO 6: The County will balance the productivity and conservation of soil resources.

Policy CO 6.1: Protect prime agricultural lands from the adverse effects of urban encroachment, particularly increased erosion and sedimentation, trespass, and non-agricultural land development.

City of Chino General Plan, Open Space and Conservation Element
The City of Chino Open Space and Conservation Element includes the following goal and objectives regarding agriculture that may be applicable to all program activities within the IEUA service area:

Goal OSC-2: Connect Chino's residents to historic agricultural uses and support appropriate ongoing agricultural uses.

Objective OSC-2.1: Support links to Chino's agricultural history.
Objective OSC-2.2: Preserve and protect the remaining agricultural land in Chino.
Objective OSC-2.3: Minimize conflicts between agricultural and urban uses.

City of Ontario, Biological, Mineral, and Agricultural Resources Element
The City of Ontario, Biological, Mineral, and Agricultural Resources Element includes the following goal and policy regarding agriculture that may be applicable to all program activities within the IEUA service area:

Goal ER5: Protected high value habitat and farming and mineral resource extraction activities that are compatible with adjacent development.

Policy ER5-4: *Transition of Farms.* We protect both existing farms and sensitive uses around them as agricultural areas transition to urban uses.

Significance Criteria
The criteria used to determine the significance of impacts related to Agricultural and Forestry resources are based on Appendix G of the *CEQA Guidelines*. The proposed program would result in a significant impact to Agricultural and Forestry resources if it would:

a. *Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use;*
b. *Conflict with existing zoning for agricultural use, or a Williamson Act Contract;*

c. *Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g));*
d. *Result in the loss of forest land or conversion of forest land to non-forest use.*
e. *Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use; or*

A discussion of the impacts and mitigation measures for the proposed program are presented below.

II.3 Impacts Discussion

a. *Convert Prime Farmland, Unique Farmland or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?*

The Chino Basin area historically contains significant agricultural resources; primarily dairy ranches and vegetable farms located in the southwestern portion of the County of San Bernardino. There are several areas of land designated by the California Department of Conservation as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance within the Chino Basin area which includes portions of Riverside County (see Figures II-2 and II-3). Most of the important farmland in the Chino Basin is located within the City of Chino, the City of Ontario, and Prado Regional Park area, which is located in the southern portion of the program area. General Plan Land Use Maps for all cities will be provided in Attachment 1.

Project Category 1: Well Development and Monitoring Devices (PEs 1-9)
This project category includes development of ASR, injection, pumping, groundwater level and water quality monitoring wells; associated well housing, as well as monitoring devices such as flow meters and extensometers. These wells would be installed throughout the Chino Basin, but with an emphasis on new facilities north of State Highway 60.

With slightly less than 200 wells envisioned over the next 30 years to support the OBMPU and an estimated one-half acre of disturbance for each new well, approximately 100 acres of future disturbance will result from implementing these new facilities. Those new facilities located north of State Highway (SH) 60 will not cause the loss of any important farmland. Those located south of SH 60 have a potential to cause the loss of some important farmland soil resources. However, these well sites and support facilities are rarely required to be installed at a specific location, so mitigation is available to minimize future Category 1 facility impacts to such resources in the southern portion of the Basin.

Project Category 2: Conveyance Facilities and Ancillary Facilities (PEs 2, 4-9)
This category includes the construction of an estimated 550,000 LF of new pipelines, booster pump stations, reservoirs, and supporting equipment. The proposed conveyance facilities and ancillary facilities would be implemented throughout the entire Chino Basin. It is assumed that most pipelines will be installed within existing, disturbed public rights-of-way (ROW) with support facilities in adjacent developed areas. Again, all Project Category 2 facilities north of SH 60 will not cause the loss of or adverse impact to important farmland resources. Most of the new facilities south of the SH 60 are also expected to be installed within public ROWs. In addition, in most cases water wells can be moved short distances to avoid conflicts with site specific resources, which can usually allow avoidance of significant farmland/soil resources. However, in the southern portion of the Basin some conveyance facilities and support equipment may be required to be located within important farmland areas resulting in a potentially significant impact to such resources. Where this occurs mitigation will be implemented to avoid or compensate for such impacts.

Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands (PEs 2, 4-5, 8-9)
This category includes the construction of 310 acres of new storage basins, including new basins and modifications/improvements to existing basins. It includes the use of up to 200 acres of agricultural land to support flood MAR facilities, new MS-4-compliance facilities and expansion of the maximum storage space (safe storage capacity) to be used in the Chino Basin from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af between

this range of storage. The specific locations of the storage basins are described in the Project Description above; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

As indicated in the preceding Project Category discussions, all Project Category 3 facilities north of SH 60 will not cause the loss of or adverse impact to important farmland resources. In contrast several of the proposed storage basin facilities will be located in the southern Chino Basin (south of SH 60) and will be located within important farmland areas resulting in a potentially significant impact to such farmland resources. This includes several hundred acres of important farmland shown on Figure II-2 on Chino Institute for Men (CIM) property; farmland also occurs adjacent to the Lower Cucamonga Creek Basins; and farmland occurs in the vicinity of the proposed Mill Creek basin. Within existing basins, modifications will not adversely impact important farmlands. To offset the impacts to important farmland in the southern Chino Basin which may remove more than 100 acres of important farmland from production, projects can compensate for such impacts to farmland resources by participating in important farmland mitigation banks, either ones created in the local area or mitigation banks established in other areas of California. Mitigation is provided below to accomplish this.

The flooding of existing agricultural fields can be managed in a manner that can enhances agricultural activity, not cause adverse impacts. This can be done by using agricultural lands during periods of non-production (winter) and ensuring that the MAR activities do not diminish the quality of existing farmland productiveness. Mitigation is provided below to accomplish this.

Regarding other Category 3 projects, the increase in storage in the Chino Basin is not forecast to cause any adverse impact to important farmland either directly (such as removal from production) or indirectly through enhancing land values that could cause the transition of important farmland to other uses. Regarding MS-4 compliance facilities, such facilities are typically associated with managing surface runoff from urban development, not agricultural land, and implementation of programs to enhance MS4 facilities is not forecast to adversely impact any important farmland resources.

Project Category 4: Desalters and Water Treatment Facilities (PEs 2, 4-9)
The projects proposed under this category include: upgrades at IEUA's existing Water Recycling Plants (WRPs, discussed in detail in IEUA's 2017 FMP PEIR); a new advanced water treatment plant; improvements to the WFA Agua de Lejos Treatment Plant; upgrades to the Chino Desalters, new groundwater treatment facilities at or near existing well sites and at regionally located sites; and improvements to existing groundwater treatment facilities.

Again, all Project Category 4 facilities north of SH 60 will not cause the loss of or adverse impact to important farmland resources. Most of the new Category 4 facilities south of the SH 60 are also expected to be installed within disturbed areas that support existing public facilities, such as existing Desalter sites or existing well sites. If a regional water treatment facility must be constructed south of SH 60, it could impact important farmland. Mitigation is provided below to address any Category 4 facilities either through avoidance of important farmlands during site selection or through compensatory mitigation. Where this occurs, the mitigation will be implemented to avoid or compensate for such impacts.

Combined Project Categories
Proposed facilities could potentially be constructed on land designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (important farmland). Construction and operation of ancillary facilities could convert this land to non-agricultural use. Therefore, impacts would be potentially significant for all four Project Categories.

Level of Significance Before Mitigation: Potentially Significant.

Mitigation Measures:

AGF-1 ***For all proposed facilities in the southern portion of the Chino Basin (south of SH 60), the potential for impact to important farmlands shall be determined prior to final site***

election. If important farmland cannot be avoided and individually exceeds 5 acres or cumulatively exceeds 10 acres of important farmland lost to agricultural production over the life of the program, the agency implementing the project shall purchase compensatory mitigation in the form of comparable important farmland permanently conserved in either a local or State-approved important farmland mitigation bank at a mitigation ratio of 1:1. The acquisition of this compensatory mitigation shall be completed within one year of initiating construction of the proposed facility and verification shall be documented with the Chino Basin Watermaster.

Level of Significance After Mitigation: Less Than Significant

Cumulative Impact Analysis

The cumulative analysis for impacts to agriculturally important farmland resources involves the compilation of acreage all projects that occur within the southern portion of the Chino Basin by the Chino Basin Watermaster. Because agricultural land designated as Prime Farmland, Unique Farmland, and Farmland of Statewide Importance is limited and undergoing reduction within the Chino Basin, the loss of more than 10 acres over the life of the program in this area would be considered a significant cumulative impact. The proposed OBMPU projects that remove more than a cumulative 10 acres of important farmlands within the Chino Basin are potentially significant and impacts to important farmland greater than 10 acres would be considered cumulatively considerable.

*Cumulative Measure: Implementation of Mitigation Measure **AGF-1** is required.*

Level of Significance After Mitigation: Less than Significant

The implementation of Mitigation Measure (MM) **AGF-1** would ensure the proposed facilities' contribution to project specific or cumulative farmland impacts would be reduced to less than cumulatively considerable through implementation of MM **AGF-1**. If there is a determination of significance, then the implementing agency will either relocate and avoid the impact, or offset the loss by acquiring agricultural land conservation credits at a minimum ratio of 1:1.

b. Conflict with existing zoning for agricultural use or a Williamson Act contract?

All Project Categories

Based on the data available from the counties and the DOC, there is no land within the Chino Basin under Williamson Act Contract. Therefore, none of the facilities and operations proposed under the OBMPU program elements have a potential to adversely impact such land.

The same circumstance exists for the six cities that no longer include any designated agricultural land. The proposed project cannot conflict with exist land use designations. On the other hand, there are five agencies, the two counties and the cities of Chino, Chino Hills and Eastvale that still have some land assigned agricultural designations. The critical issue for such designated land is whether such designated land constitutes "important farmlands" in contrast to low value (from an agricultural perspective) agricultural land, such as grazing land. Where future OBMPU water facilities or operations are proposed for implementation, a potential does exist for impact to important farmlands that are coincidentally. To mitigate potential impacts to high value agricultural land (important farmland), the following mitigation measure shall be implemented.

Combined Project Categories

Proposed facilities could potentially be constructed on land designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (important farmland). Construction and operation of ancillary facilities could convert this land to non-agricultural use. Therefore, impacts would be potentially significant for all four Project Categories.

Level of Significance Before Mitigation: Potentially Significant

Mitigation Measures:

AGF-2 ***For all proposed facilities in the southern portion of the Chino Basin (south of SH 60), the potential for impact to important farmlands shall be determined prior to final site election. If important farmland cannot be avoided and individually exceeds 5 acres or cumulatively exceeds 10 acres of important farmland lost to agricultural production over the life of the program, the agency implementing the project shall relocate and avoid the site, or alternatively the agency shall conduct a California Land Evaluation and Assessment (LESA) model evaluation. If the evaluation determines the loss of important farmland will occur, the agency shall purchase compensatory mitigation in the form of comparable important farmland permanently conserved in either a local or State-approved important farmland mitigation bank at a mitigation ratio of 1:1. The acquisition of this compensatory mitigation shall be completed within one year of initiating construction of the proposed facility and verification shall be documented with the Chino Basin Watermaster.***

Level of Significance After Mitigation: Less than Significant

The implementation of Mitigation Measure **AGF-2** includes the need to conduct a LESA Model if a facility is proposed on land designated as important farmland. If there is a determination that the loss of farmland is significant based on the LESA Model, the implementing agency would offset the loss by acquiring agricultural land conservation credits at a minimum ratio of 1:1 so that potential impacts to land zoned for agriculture would be reduced to less than significant.

<u>Cumulative Impact Analysis</u>
The cumulative analysis for determining conflicts between proposed projects and agricultural zoning and Williamson Act Contracts, involves the implementation of OBMPU facilities. ice area. Because land zoned for agriculture is limited within the Chino Basin, the loss of any of more than 10 acres of important farmland in the area would be considered a significant cumulative impact. Thus, cumulative impacts to agricultural zones are cumulatively considerable.

Level of Significance Before Mitigation: Potentially Significant

*Cumulative Measures: Implementation of Mitigation Measure **AGF-2** is required.*

Level of Significance After Mitigation: Less than Significant

The implementation of Mitigation Measure **AGF-2** would ensure the proposed facilities' contribution to cumulative impacts on important farmland zoned for agriculture would be reduced to less than cumulatively considerable by using the LESA Model to determine if a significant farmland impact would occur. If there is a determination of significance, then the implementing agency will offset the loss by acquiring agricultural land conservation credits at a minimum ratio of 1:1.

c. *Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?*

The Chino Basin does not include zoning designations for forest land, timberland, or timberland zoned Timberland Production. The project area borders the San Bernardino National Forest, but it does not overlap with the Chino Basin boundaries.

<u>Combined Project Categories</u>

Level of Significance Before Mitigation: No Potential for Significant Impact

With no acreage designated for timberland development in the Chino Basin by any of the local jurisdictions, no potential exists to adversely impact timberland through conflicts with such land use designation.

Mitigation Measures: None required.

Cumulative Impact Analysis
The proposed projects would not conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production; and therefore, would not contribute to any cumulative effect on forest or timberland.

Level of Significance Before Mitigation: No Impact

Cumulative Measures: None Required

Level of Significance After Mitigation: No Impact

d. Result in the loss of forest land or conversion of forest land to non-forest use?

The southern-most portion of the Chino Basin overlaps with riparian woodland areas along the Santa Ana River; Chino Creek; and Mill Creek; and in the Prado Basin. Certain areas of these riparian woodlands may qualify as forest land based on the definition cited at the beginning of this section of the Initial Study. Other than these specific areas, no contiguous area of forest land occur in the Chino Basin. Further, no jurisdictions have designated areas within their jurisdiction with zoning designations for forest land. The Chino Basin area borders the San Bernardino National Forest, but it does not overlap with the Basin itself.

Combined Project Categories
Some of the OBMPU facilities, particularly monitoring wells, other wells, and the proposed Mill Creek water storage basin could impact riparian woodland that might qualify as "forest land." Projects in the remainder of the Basin would not result in the loss of forest land or conversion of forest land to non-forest use, and therefore, would not contribute to any cumulative effect on forest or timberland losses from OBMPU implementation.

Level of Significance Before Mitigation: Potentially Significant Impact

Mitigation Measures:

AGF-3 ***For all proposed facilities that may impact riparian woodland/forest land in the portion of the Chino Basin (SH 60), the potential for impact forest land shall be determined prior to final site election. If important forest land cannot be avoided and permanently will exceed 5 acres in area, the agency implementing the project shall relocate and avoid the site, or alternatively the agency shall conduct an evaluation to determine if it qualifies with the State definition of "forest land." If the evaluation determines the permanent loss of important forestland will occur, the agency shall purchase compensatory mitigation in the form of comparable forest land permanently conserved in either a local or State-approved important forest land mitigation bank at a mitigation ratio of 1:1. Alternatively, the agency may carry out a forest land creation program at a 1:1 ratio for comparable woodland. The acquisition or creation of this compensatory mitigation shall be completed/initiated within one year of initiating construction of the proposed facility and verification shall be documented with the Chino Basin Watermaster.***

Level of Significance After Mitigation: Less Than Significant

Cumulative Impact Analysis
The Prado Basin contains several hundred acres of riparian woodland that may qualify as "forest land." The proposed projects could result in the conversion of limited areas in the Prado Basin to support OBMPU project categories of uses. It is not possible to quantify the extent of impacts at this stage of the review

because many site locations have not yet been identified. Therefore, in a manner similar to the site selection and compensation procedure established for important farmland impacts and for analysis purposes, any loss of riparian woodland/forest land would be considered significant if it exceeds five acres total. Note that such woodland is being considered here not for its wetland values, but for its "forest land" impacts. The following mitigation measure shall be implemented to reduce riparian woodland/forest land impacts to a less than significant impact.

*Cumulative Measure: Implementation of Mitigation Measure **AGF-3** is required.*

Level of Significance After Mitigation: Less Than Significant

For all projects implemented in the Chino Basin that actually impact "forest land/riparian woodland" the mitigation shall be required when five acres or more of such woodland is impacted in support of OBMPU projects.

e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion to forest land to non-forest use?

With the exceptions of impacts to Williamson Act lands, lands zone for agriculture and property zoned for forest land, a limited potential has been identified to convert agricultural land and forest land to water management uses from implementing the OBMPU Program Elements (Project Categories) in the Chino Basin.

Combined Project Categories

Level of Significance Before Mitigation: Potentially Significant

Mitigation Measures: For all Project Categories (1-4) mitigation measures **AGF-1, AGF-2,** and **AGF-3** can be implemented to reduce potentially significant adverse impacts to agricultural, forest, and timber resources to a less than significant impact level.

Level of Significance After Mitigation: Less Than Significant

The implementation of each mitigation involves avoidance as the first mitigation approach, but provides contingency measures to address impacts that cannot fully avoid these resources. Two of the mitigation measures require tests of onsite resources (the LESA Model or an evaluation to determine whether woodlands qualify as "forest land") to determine whether they qualify as resources of sufficient importance that would require mitigation of potential impacts.

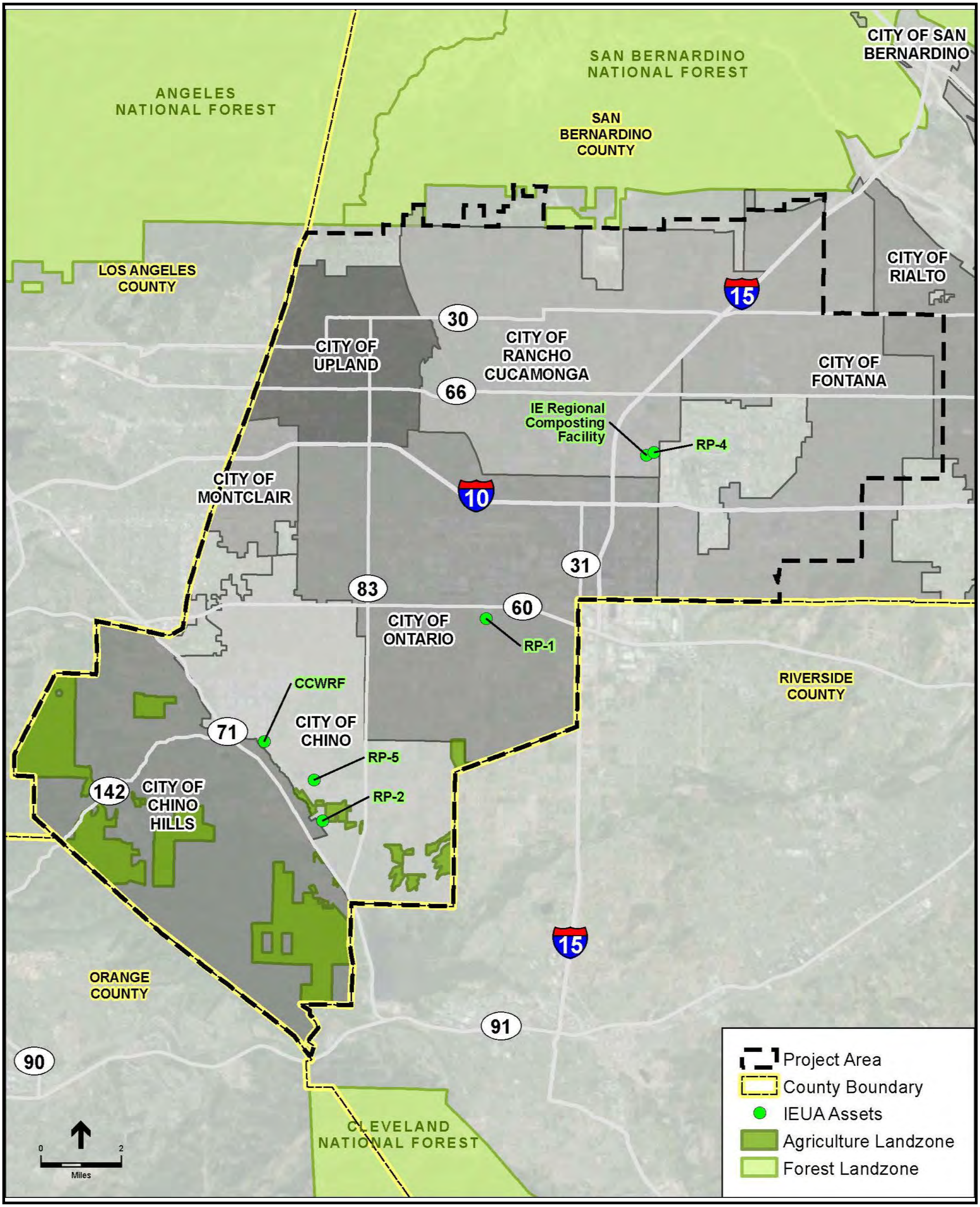
Cumulative Impact Analysis

Level of Significance Before Mitigation: Potentially Significant

*Cumulative Measures: Implementation of Mitigation Measures **AGF-1** and **AGF-2**, and **AGF-3** is required.*

Level of Significance After Mitigation: Less Than Significant

The implementation of Mitigation Measures **AGF-1** and **AGF-2**, and **AGF-3** would ensure the proposed facilities' contribution to cumulative impacts from converting existing farmland or forest land to a non-agricultural use or non-forest use would be reduced to less than a cumulatively considerable impact.

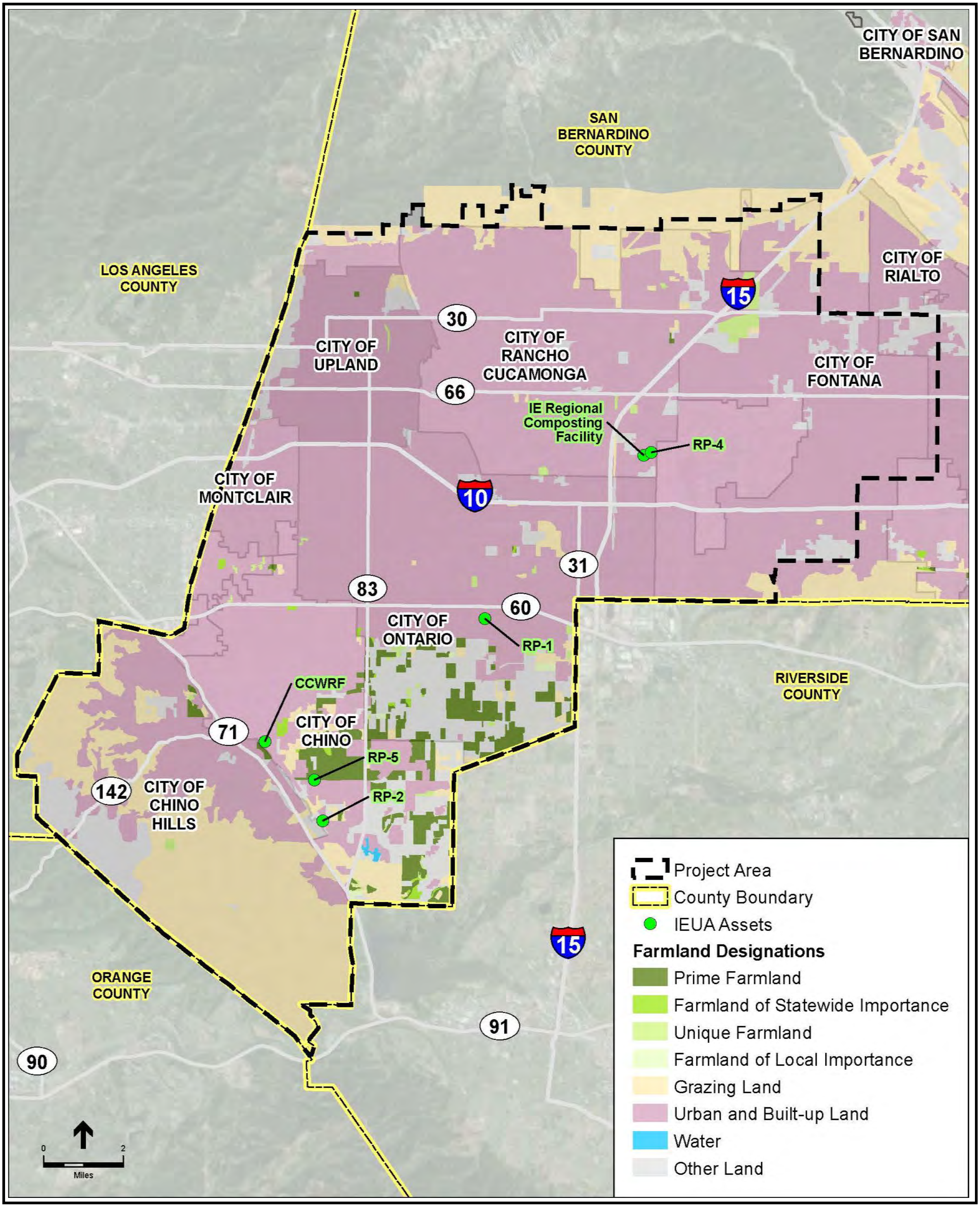


SOURCE: IEUA Facilities Master Plan PEIR, December 2016

FIGURE II-1

Tom Dodson & Associates
Environmental Consultants

Agriculture and Forest Land Zones



SOURCE: IEUA Facilities Master Plan PEIR, December 2016

FIGURE II-2

Tom Dodson & Associates
Environmental Consultants

FMMP Farmland Designations

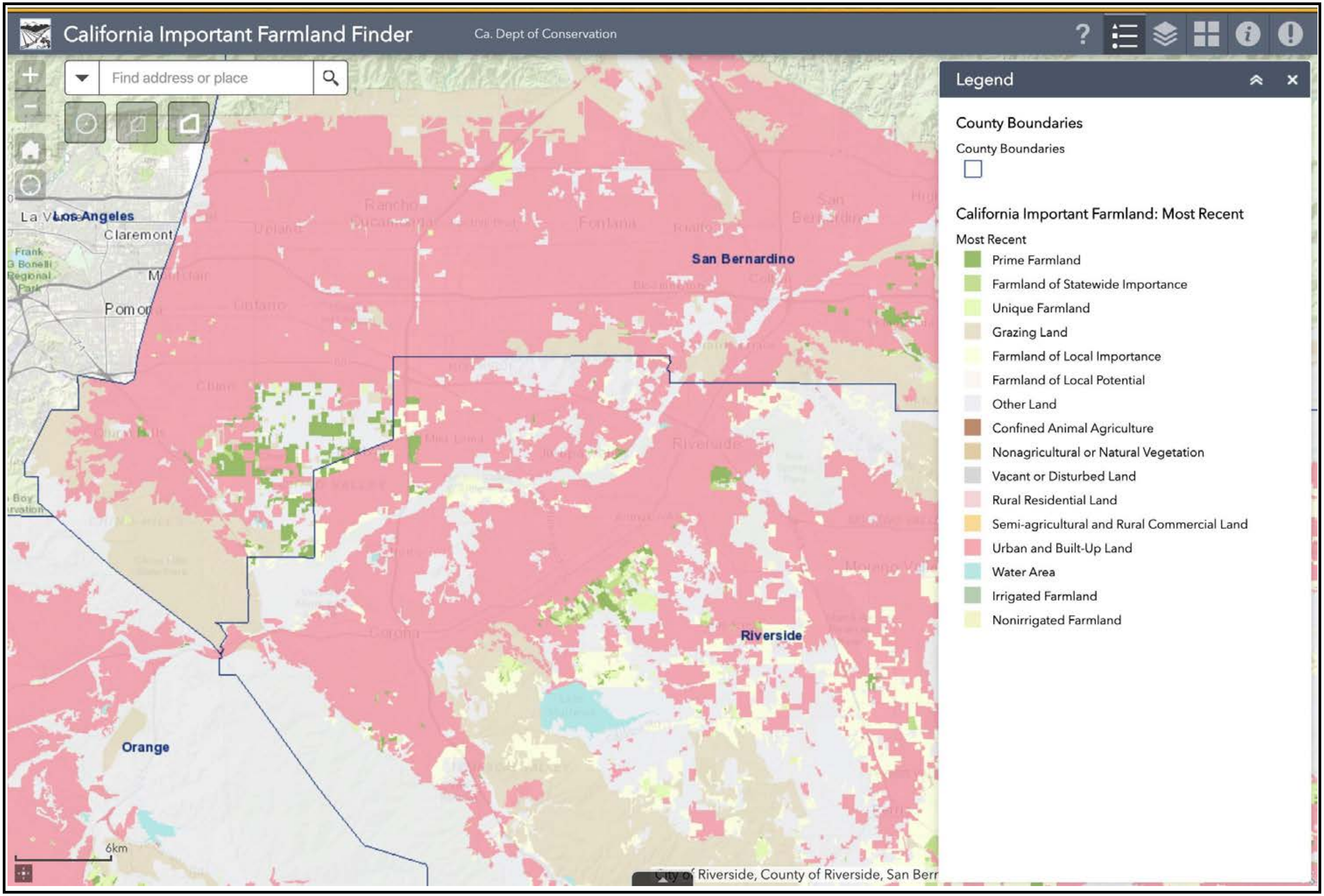


FIGURE II-3

Tom Dodson & Associates
Environmental Consultants

Farmland Map

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
III. AIR QUALITY: Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☒	☐	☐	☐
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☒	☐	☐	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☒	☐	☐	☐
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☒	☐	☐	☐

SUBSTANTIATION:

a. *Potentially Significant Impact* – Cumulatively, the facilities proposed by the OBMPU may result in construction related and operational air emissions. These emissions may exceed applicable thresholds for air quality thereby conflicting with the applicable air quality plan. This issue will be further evaluated in the Environmental Impact Report (EIR).

b. *Potentially Significant Impact* – Cumulatively, the facilities proposed by the OBMPU may result in construction-related fugitive dust and equipment emissions. Operation of the facilities proposed as part of the OBMPU would likely result in increased emissions of air pollutants. These issues will be further evaluated in the EIR.

c. *Potentially Significant Impact* – Construction and operational activities may expose sensitive receptors to air pollution in substantial concentrations. The facilities proposed as part of the OBMPU would likely result increased air emissions associated with diesel particulate matter and other pollutants. These issues will be further evaluated in the EIR.

d. *Potentially Significant Impact* – Substantial odor-generating sources include land uses such as agricultural activities, feedlots, wastewater treatment facilities, landfills or various heavy industrial uses. The OBMPU proposed facilities that may generate substantial odors or other emissions. These issues will be further evaluated in the EIR.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
IV. BIOLOGICAL RESOURCES: Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☒	☐	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☒	☐	☐	☐
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☒	☐	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☒	☐	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☒	☐	☐	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☒	☐	☐	☐

SUBSTANTIATION:

a-f. *Potentially Significant Impact* – Cumulatively, the facilities proposed by the OBMPU may result in impacts to biological resources. A deeper analysis of this topic is required to determine the impacts that may result from each of the types of facilities proposed as part of the OBMPU. As a result, this topic will be further evaluated in the EIR.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
V. CULTURAL RESOURCES: Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☒	☐	☐	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☒	☐	☐	☐
c) Disturb any human remains, including those interred outside of formal cemeteries?	☒	☐	☐	☐

SUBSTANTIATION

a-c. *Potentially Significant Impact* – Cumulatively, the facilities proposed by the OBMPU may result in impacts to cultural resources. A deeper analysis of this topic is required to determine the impacts that may result from each of the types of facilities proposed as part of the OBMPU. As a result, this topic will be further evaluated in the EIR.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
VI. ENERGY: Would the project:				
a) Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operations?	☒	☐	☐	☐
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☒	☐	☐	☐

SUBSTANTIATION

a&b. *Potentially Significant Impact* – Cumulatively, the energy required for construction and operational activities associated with the facilities proposed by the OBMPU may result in significant impacts under this category. A deeper analysis of this topic is required to determine the impacts that may result from each of the types of facilities proposed as part of the OBMPU. As a result, this topic will be further evaluated in the EIR.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
VII. GEOLOGY AND SOILS: Would the project:				
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
(i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☒	☐	☐
(ii) Strong seismic ground shaking?	☐	☒	☐	☐
(iii) Seismic-related ground failure, including liquefaction?	☐	☒	☐	☐
(iv) Landslides?	☐	☒	☐	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☒	☐	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in onsite or offsite land-slide, lateral spreading, subsidence, liquefaction or collapse?	☐	☒	☐	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☒	☐	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☐

SUBSTANTIATION

VII.1 Environmental Setting

Regional Geology

According to the California Geologic Survey (CGS) Division of the California Department of Conservation (DOC), the Chino Basin is part of a large and broad alluvial-filled plain situated between the San Gabriel Mountains to the north (Transverse Ranges) and the elevated Perris Block to the south (Peninsular Ranges). The surrounding mountains and bedrock hills were uplifted by tectonic compression and faulting during the Quaternary Period, and sediments were eroded and washed-out of the mountains by streams and deposited in the low-lying depressions on the Perris Block to form the groundwater reservoirs of the Chino Basin and its neighboring groundwater basins. Major faults in the area—the Cucamonga Fault Zone, the Rialto-Colton Fault, the Red Hill-Etiwanda Avenue Fault, the San Jose Fault, Central Ave Fault, and the Chino Fault—are at least partly responsible for the uplift of the surrounding mountains and the depression of the basin. These faults are significant in that they are known barriers to groundwater flow within the alluvial aquifer-system(s) and define some of the external boundaries of the basins by influencing the magnitude and direction of groundwater flow.

Quaternary alluvial deposits and recent soils comprise the majority of the stratigraphy of the County. Other strata may include Tertiary marine and non-marine non-sedimentary and volcanic units; Mesozoic marine sedimentary; metasedimentary, metavolcanic and plutonic rocks, Paleozoic sedimentary and meta-sedimentary units; and Precambrian igneous and metamorphic rocks (IEUA, 2000).

Topography

The Chino Basin is located in southern California within the west end of San Bernardino Valley; just east of Los Angeles County, northeast of Orange County, and north of the Riverside County boundary lines. There are three primary physiographic regions within San Bernardino County: Valley, Mountain and Desert regions. The Chino Basin lies within the Valley Region which consists of the area south of the San Gabriel and San Bernardino Mountains and includes the Upper Santa Ana Valley and Chino Hills.

The service area consists primarily of the Chino Basin which is an alluvial valley that is relatively flat from east to west, sloping north to south at a one to two percent grade. Basin elevation ranges from 2,000 feet adjacent to the San Gabriel Foothills to approximately 500 feet near Prado Dam. The Chino Basin is bordered to the north by the Cucamonga Basin; to the east by the Rialto-Colton Basin and the Jurupa Mountains; to the south by the Santa Ana River and the Temescal Basin; and to the west by the Chino Hills, Puente Hills and the Six Basins Basin (IEUA, 2000).

Seismic Hazards

The high population density compared to the Mountain and Desert regions coupled with the presence of the San Andreas, San Jacinto, and the Cucamonga faults and close proximity to other major faults make the Valley Region of the County have a greater risk for populations and structures to be exposed to potential geological hazards (County of San Bernardino, 2007b).

There are three active faults (Elsinore [Chino] Fault Zone, Red Hill-Etiwanda Avenue Fault Zone, and Sierra Madre Fault Zone) within the Chino Basin. There are additional active or potentially active faults outside of the Chino Basin and within or near the County with the potential to create a magnitude earthquake of 3.7 or greater up to approximately magnitude 7.5-8.0. There is also an extensive history of large, damaging earthquakes occurring within the County ranging from the 1812 Wrightwood earthquake (7.5 magnitude) to the 1999 Hector Mine earthquake (7.1 magnitude). In addition to strong ground shaking from earthquakes on faults located within the region, large earthquakes on faults near the County boundaries also have and will impact property within the County. Many of the other potential geologic hazards in the region are associated with earthquake activity including surface fault rupture, flooding due to potential dam failure, soil liquefaction, and seismically induced landslides. Surface fault rupture can directly impact properties traversed by or adjacent to an active fault. The other seismic hazards may be triggered by earthquakes up to several tens of kilometers from a site (County of San Bernardino, 2007b).

Surface Fault Rupture

Seismically-induced ground rupture is defined as the physical displacement of surface deposits in response to an earthquake's seismic waves. The magnitude and nature of fault rupture can vary for different faults, or even along different strands of the same fault. Ground rupture is considered more likely along active faults. Site locations for the proposed projects within the OBMPU may be within an Alquist-Priolo Earthquake Fault Zone, as designated by the Alquist-Priolo Earthquake Fault Zoning Act (DOC, 2010). Active faults within the Chino Basin are shown on Exhibit 1. According to the Riverside County General Plan, the portion of the Chino Basin that is located in Riverside County does not overlie any Alquist-Priolo special studies zones.

Ground Shaking

According to the DOC's Earthquake Shaking Potential for California map (DOC, 2008), the Chino Basin is within an area subject to high frequency shaking potential. High frequency shaking areas are in regions near major, active faults and will on average experience stronger earthquake ground shaking more frequently. This intense shaking can damage strong, modern buildings (DOC, 2008). Ground shaking intensity varies depending on the overall earthquake magnitude, distance to the fault, focus of earthquake energy, and type of geologic materials underlying an area. The Modified Mercalli Intensity (MMI) scale is commonly used to express earthquake effects due to ground shaking because it expresses ground shaking relative to actual physical effects observed by people during a seismic event. MMI values range from I (earthquake not felt) through a scale of increasing intensities to XII (nearly total damage). Earthquakes on the various active and potentially active fault systems within and near the Chino Basin can produce a wide range of ground shaking intensities.

Liquefaction and Landslide Hazards
Soil liquefaction is a phenomenon whereby unconsolidated and/or near saturated soils lose cohesion and are converted to a fluid state as a result of severe vibratory motion. The relatively rapid loss of soil shear strength during strong earthquake shaking results in the temporary fluid-like behavior of the soil. During liquefaction, soils lose strength and ground failure may occur. Secondary ground failures associated with liquefaction include lateral spreading or flowing of stream banks or fills, sand boils, and subsidence. Areas characterized by water-saturated, cohesionless, and granular soils are most susceptible to liquefaction and usually at depths of less than 50 feet, especially in areas with a shallow water table. The groundwater table can fluctuate greatly in association with groundwater recharge activities, both natural and artificial. During years of high groundwater recharge, the groundwater table could potentially be shallow enough to present a liquefaction hazard in the areas of the existing recharge basins. Portions of the service area are within liquefiable zones as discussed in the General Plans for the cities and County.

Landslides are the down-slope displacement of rock, soils and debris. The susceptibility of land (slope) failure is dependent on slope and geological formations and influenced by levels of rainfall, excavation, or seismic activities. Steep slopes and downslope creep of surface materials characterize landslide-susceptible areas. The southwestern portion of the Chino Basin is located within landslide hazard zones, as defined in the Seismic Hazard Zones map for the County (DOC, 2015). Landslides and mudflow hazards exist throughout the County, on steep hillsides and in creek and streambed areas. These can be triggered by earthquakes, heavy rain events, and other causes. Specifically, Chino Hills is underlain by landslide-prone marine rocks, presenting the greatest potential slope stability problem in the service area (County of San Bernardino, 2007a).

<u>Soils</u>
Soils within the Valley Region generally include deep well-drained sands, sandy loams, silty loams on level alluvial basins and fans; and shallow to deep, well to excessively drained, sandy loams on foothills and upland areas (IEUA, 2000). The soils present within the service area vary slightly in physical properties but share similar characteristics. Soils within the southwestern portion of San Bernardino County (including the Chino Basin) are presented in Table VII-1 below.

Subsidence
Subsidence of the ground surface can occur under static conditions (i.e., due to consolidation settlement from overlying load or long-term groundwater extraction) but can also be accelerated and accentuated by earthquakes and tectonic activity. Subsidence of loose, unconsolidated soils generally occurs slowly, but can cause significant structural damage.

San Bernardino County has undergone tectonic activity, including the uplifting of the San Bernardino Mountains in relation to the Valley Region. This activity has raised some portions of the Earth’s crust, while others have subsided. This tectonic subsidence is of concern during very large earthquakes. Furthermore, subsidence caused by groundwater withdrawal is of concern to alluvial valleys of San Bernardino County. The entire alluvial valley area in southwestern San Bernardino County, primarily the Chino area, has experienced subsidence from groundwater withdrawal. Subsidence from 0.8 to 5.8 feet is possible in these areas (County of San Bernardino, 2007a).

Table VII-1
SOILS WITHIN SOUTHWESTERN SAN BERNARDINO COUNTY

Soil Type	Acres
Alo clay, 15 to 30 percent slopes	3.2
Calleguas clay loam, 50 to 75 percent slopes, eroded	10.5
Soper gravelly loam, 30 to 50 percent slopes	31.8
Alo clay, 30 to 50 percent slopes, warm MAAT, MLRA 20	956.0
Chino silt loam	7,840.2
Chualar clay loam, 0 to 2 percent slopes	871.0
Chualar clay loam, 2 to 9 percent slopes	2,706.2
Chualar clay loam, 9 to 15 percent slopes	1,132.7
Cieneba sandy loam, 9 to 15 percent slopes	430.7
Cieneba-Friant sandy loams complex	1,124.9
Cieneba-Rock outcrop complex, 30 to 50 percent slopes, MLRA 20	16,535.3
Crafton-Rock outcrop complex, eroded	761.3
Delhi fine sand	22,344.7
Fontana clay loam, 15 to 30 percent slopes	2,067.3
Fontana clay loam, 30 to 50 percent slopes	9,715.9
Friant-Rock outcrop complex	1,309.7
Garretson very fine sandy loam, 2 to 9 percent slopes	479.3
Gaviota-Rock outcrop complex	5,248.7
Quarries and Pits soils	872.1
Grangeville fine sandy loam	7,763.9
Grangeville fine sandy loam, saline-alkali	1,155.1
Greenfield sandy loam, 2 to 9 percent slopes	7,651.3
Greenfield fine sandy loam, 9 to 15 percent slopes	630.7

Source: NRCS, 2016

Erosion
Soil erosion is the detachment and movement of soil materials through natural processes or human activities. Natural processes include water, landslide, fire, flood, and wind. Man-made causes could include irresponsible grading and other construction practices, use of off-road vehicles, and other indiscriminate disruptions of soil. Wind is the primary cause of erosion in San Bernardino County. In the Valley Region, especially at the base of mountains and foothills like Chino Hills and northern Rancho Cucamonga, wind is more severe, and therefore, erosion is more prevalent. According to the San Bernardino County General Plan, severe erosion can be a problem anywhere in the County, especially when precipitation and/or wind combine with uncovered soil (County of San Bernardino, 2007a).

Expansive Soils
Expansive soils contain significant amounts of clay particles that have the ability to give up water (shrink) or take on water (swell). When these soils swell, the change in volume can exert significant pressures on loads that are placed on them, such as loads resulting from building and structure foundations or

underground utilities, and can result in structural distress and/or damage. Often, grading, site preparations, and backfill operations associated with subsurface structures can eliminate the potential for expansion. Linear extensibility and plasticity are used to describe the shrink-swell potential of soils. If linear extensibility is greater than 3 percent (classified as Moderate potential), shrinking and swelling can cause damage to buildings, roads, and other structures (NRCS, 2014). Most of the Chino Basin is comprised of old alluvial fans and valley deposits, which vary in consistency but are not typically expansive. However, soils within clay-rich units with moderate to high shrink-swell potential are located throughout the Chino Basin.

VII.2 Impact Discussion

Would the project:

a. *Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:*
   (i) *Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.*

Project Category 1: Well Development and Monitoring Devices (PEs 1-9)
This Project Category includes the development of ASR, injection, pumping, groundwater level monitoring, and groundwater quality wells, associated well housing, as well as monitoring devices such as flow meters and extensometers. The proposed wells and monitoring devices will be installed throughout the Chino Basin.

Given that the locations of the proposed wells and monitoring devices are presently unknown, it is possible that any of the future wells and monitoring devices could be located within an area delineated as an Alquist-Priolo Earthquake Fault Zone. There are three faults delineated on the Alquist-Priolo Earthquake Fault Zoning Map within and adjacent to the Chino Basin: the Elsinore Fault Zone (Chino Fault), which crosses the western boundary of the Chino Basin; the Red Hill-Etiwanda Avenue Fault, which traverses the northern boundary of the Chino Basin; and, a segment of the Sierra Madre Fault Zone, Cucamonga Section passes through the northwestern portion of the Chino Basin. The flow meters will be located within surface water, and are small devices; no structures will be developed in association with these flow meters and as such no risk of loss, injury, or death associated with being located within or near an active fault zone is anticipated to occur. The extensometers will be located within wells, and the proposed wells may be housed within a small structure. As such, because the locations for future wells and extensometers are unknown at this time, there is the potential for projects to be constructed and operated within an Alquist-Priolo Fault Zone. Projects proposed under this Project Category operated within these zones could expose structures to potential substantial adverse effects; therefore, mitigation is required to minimize impacts under this issue through ensuring that new facilities are located outside of delineated fault zones, or if located within a fault zone are analyzed thoroughly through a site specific geotechnical report with specific design recommendations or through a second tier CEQA evaluation.

Project Category 2: Conveyance Facilities and Ancillary Facilities (PEs 2, 4-9)
This category includes the construction of 550,000 LF of new pipelines, booster pump stations, reservoirs and minor appurtenances whose number. The proposed conveyance facilities and ancillary facilities would be implemented throughout the entire Chino Basin.

As mentioned in Project Category 1, the Elsinore, Red Hill, and Sierra Madre Faults are each delineated as being located within Alquist-Priolo Earthquake Fault Zones. Underground pipelines are not typically susceptible to severe damage from fault rupture, depending on the severity of a seismic event. However, because not all proposed projects locations are determined at this time, there is the potential for projects to be constructed and operated within an Alquist-Priolo Fault Zone. Facilities operated within these zones could expose conveyance and ancillary facilities to potential substantial adverse effects; therefore, therefore, mitigation is required to minimize impacts under this issue through ensuring that new facilities are located outside of delineated fault zones, or if located within a fault zone are analyzed thoroughly through a site specific geotechnical report with specific design recommendations or through a second tier CEQA evaluation.

Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands (PEs 2, 4-5, 8/9)
This Project Category includes the construction of 310 acres of new storage basins—several locations for which are within existing facilities, improvements to existing storage basin(s), 200 acres of flood MAR facilities, new MS4-compliance facilities, and expansion of the maximum storage space (safe storage capacity) to be used within the Chino Basin from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af between this range of storage. The specific locations of the storage basins are described in the Project Description above; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

The storage facilities proposed under this project category would not include any aboveground, habitable structures. The ancillary facilities required to implement these projects are discussed under Project Category 2 above. Given that the proposed storage facilities will be developed at or below grade, and do not require any above ground structures, or are at known locations outside of the Alquist-Priolo Earthquake Fault Zones, no risk of loss, injury, or death associated with being located within or near an active fault zone is anticipated to occur.

The proposed expansion of the safe storage capacity from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward would not result in any visible above ground impacts beyond those facilities associated with the OBMPU designed to support this expansion as discussed herein. As such, no risk of loss, injury, or death associated with being located within or near an active fault zone is anticipated to occur as a result of this proposed safe storage capacity expansion.

Project Category 4: Desalters and Water Treatment Facilities (PEs 2, 4-9)
The projects proposed under this category are: upgrades at IEUA's existing Treatment Plants (discussed in IEUA's 2017 FMP PEIR), a new advanced water treatment plant (discussed in IEUA's 2017 FMP PEIR), improvements to the WFA Agua de Lejos Treatment Plant, upgrades to the Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities. Seismic impacts related to the facilities thoroughly analyzed as part of the IEUA's 2017 FMP PEIR will not be analyzed further as part of this Initial Study.

Upgrades and improvements to existing facilities (WFA Agua de Lejos Treatment Plant, Chino Desalters) would occur within developed sites already containing desalter or water treatment facilities; none of these sites is located within an Alquist Priolo Earthquake Fault Zone. Therefore, the risk of the project exposing people or structures to loss, injury, or death involving rupture of an active earthquake fault would be less than significant.

The proposed groundwater treatment facilities at well sites, existing groundwater treatment facilities (the precise location of existing groundwater treatment facilities have not been mapped), regional groundwater treatment facilities and groundwater treatment facilities near well sites would occur at locations which are presently unknown. Because not all proposed projects locations are determined at this time, there is the potential for projects to be constructed and operated within an Alquist-Priolo Fault Zone. Projects proposed as part of this Project Category operated within these zones could expose structures to potential substantial adverse effects; therefore, mitigation is required to minimize impacts under this issue through ensuring that new facilities are located outside of delineated fault zones, or if located within a fault zone are analyzed thoroughly through a site specific geotechnical report with specific design recommendations or through a second tier CEQA evaluation.

Combined Project Categories

Level of Significance Before Mitigation: Potentially Significant

Mitigation Measures:

GEO-1: ***If a specific project is proposed within a designated Alquist-Priolo Fault Zone, the facility shall be relocated, if possible. If relocation is not possible, the project shall be designed in accordance with the CBC and according to the recommendations generated by a project specific geotechnical study. If the project specific geotechnical study cannot mitigate potential seismic related impacts, then a second tier CEQA evaluation shall be completed.***

Level of Significance After Mitigation: Less Than Significant

The implementation of Mitigation Measure (MM) **GEO-1** would ensure new facilities are located outside of delineated fault zones, or otherwise minimize impacts if located within a fault zone.

a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:
(ii) Strong seismic ground shaking?

Project Category 1: Well Development and Monitoring Devices (PEs 1-9)
This Project Category includes the development of ASR, injection, pumping, groundwater level monitoring, and groundwater quality wells, associated well housing, as well as monitoring devices such as flow meters and extensometers. The proposed wells and monitoring devices will be installed throughout the Chino Basin.

As addressed under issue a(i) above, the Chino Basin is located within a region that is seismically active. In the event of an earthquake in Southern California, some seismic ground shaking would likely be experienced in the project area sometime during the operational life of the proposed wells and monitoring devices. As stated under issue a(i) above, the flow meters will be located within surface water, and are small devices; no structures will be developed in association with these flow meters and as such no risk of loss, injury, or death associated with seismic ground shaking is anticipated to occur. The extensometers will be located within wells, and the proposed wells may each be housed within a small structure. Ground shaking could result in structural damage to new facilities, which in turn could affect operation of well and extensometer related systems. Therefore, structural and mechanical failure of facilities onset by seismic ground shaking could potentially threaten the safety of on-site workers.

The structural elements of facilities proposed under this Project Category would undergo appropriate design-level geotechnical evaluations prior to final design and construction as required to comply with the CBC. The geotechnical engineer, as a registered professional with the State of California, is required to comply with the CBC and local codes while applying standard engineering practice and the appropriate standard of care required for projects in the San Bernardino County area. The California Professional Engineers Act (Building and Professions Code Sections 6700-6799), and the Codes of Professional Conduct, as administered by the California Board of Professional Engineers and Land Surveyors, provides the basis for regulating and enforcing engineering practice in California. Compliance with these construction and building safety design standards would reduce potential impacts associated with ground shaking to a level of less than significant.

Project Category 2: Conveyance Facilities and Ancillary Facilities (PEs 2, 4-9)
This category includes the construction of 550,000 LF of new pipelines, booster pump stations, reservoirs and minor appurtenances whose number. The proposed conveyance facilities and ancillary facilities would be implemented throughout the entire Chino Basin.

As addressed under issue a(i) above, the Chino Basin is located within a region that is seismically active. In the event of an earthquake in Southern California, some seismic ground shaking would likely be experienced in the project area sometime during the operational life of the proposed wells and monitoring devices. Underground pipelines are not typically susceptible to severe damage from seismic ground shaking, and furthermore are subject to industry standards that will minimize the potential risk of damage or pipeline rupture. However, the facilities under this Project Category include ancillary facilities that may be above ground, habitable structures. The primary and secondary effects of ground shaking could damage structural foundations, distort or break pipelines and other water conveyance structures, and cause structural failure.

The structural elements of conveyance and associated ancillary facilities proposed under this Project Category would undergo appropriate design-level geotechnical evaluations prior to final design and construction as required to comply with the CBC. The geotechnical engineer, as a registered professional with the State of California, is required to comply with the CBC and local codes while applying standard engineering practice and the appropriate standard of care required for projects in the San Bernardino County area. The California Professional Engineers Act (Building and Professions Code Sections 6700-6799), and the Codes of Professional Conduct, as administered by the California Board of Professional Engineers and Land Surveyors, provides the basis for regulating and enforcing engineering practice in California. In addition, the pipelines would be constructed according to industry standards using American Water Works Association (AWWA) guidelines. Compliance with these construction and building safety design standards would reduce potential impacts associated with ground shaking to a level of less than significant.

Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands (PEs 2, 4-5, 8/9)
This Project Category includes the construction of 310 acres of new storage basins—several locations for which are within existing facilities, improvements to existing storage basin(s), 200 acres of flood MAR facilities, new MS4-compliance facilities, and expansion of the maximum storage space (safe storage capacity) to be used within the Chino Basin from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af between this range of storage. The specific locations of the storage basins are described in the Project Description above; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

As discussed under issue a(i) above, the storage facilities proposed under this project category would not include any aboveground, habitable structures. The ancillary facilities required to implement these projects are discussed under Project Category 2 above. Given that the proposed storage facilities will be developed at or below grade, and do not require any habitable structures, there is no risk of the development of storage basins directly or indirectly causing potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking.

The proposed expansion of the safe storage capacity from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward would not result in any visible above ground impacts beyond those facilities associated with the OBMPU designed to support this expansion as discussed herein. As such, there is no risk of expansion of the safe storage capacity directly or indirectly causing potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking.

Project Category 4: Desalters and Water Treatment Facilities (PEs 2, 4-9)
The projects proposed under this category are: upgrades at IEUA's existing Treatment Plants (discussed in IEUA's 2017 FMP PEIR), a new advanced water treatment plant (discussed in IEUA's 2017 FMP PEIR), improvements to the WFA Agua de Lejos Treatment Plant, upgrades to the Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities. Seismic impacts related to the facilities thoroughly analyzed as part of the IEUA's 2017 FMP PEIR will not be analyzed further as part of this Initial Study.

As addressed under issue a(i) above, the Chino Basin is located within a region that is seismically active. In the event of an earthquake in Southern California, some seismic ground shaking would likely be experienced in the project area sometime during the operational life of the upgrades and improvements to existing treatment facilities, and to new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities. Ground shaking could result in structural damage to new facilities, which in turn could affect operation of related systems. Some of the proposed facilities are non-habitable or will only require visits on an as-needed basis; however, the existing treatment plants, and the proposed regional groundwater treatment plant require full time employees on-site. Therefore, structural and mechanical failure of facilities onset by seismic ground shaking could potentially threaten the safety of on-site workers.

The structural elements of facilities proposed under this Project Category would undergo appropriate design-level geotechnical evaluations prior to final design and construction as required to comply with the CBC. Compliance with the construction and building safety design standards addressed under Project Category's 1 and 2 would reduce potential impacts associated with ground shaking to a level of less than significant.

Combined Project Categories

Level of Significance Before Mitigation: Less Than Significant

Mitigation Measures: None Required.

Level of Significance After Mitigation: Less Than Significant

a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:
   (iii) Seismic-related ground failure, including liquefaction?

Project Category 1: Well Development and Monitoring Devices (PEs 1-9)

This Project Category includes the development of ASR, injection, pumping, groundwater level monitoring, and groundwater quality wells, associated well housing, as well as monitoring devices such as flow meters and extensometers. The proposed wells and monitoring devices will be installed throughout the Chino Basin.

Given that the locations of the proposed wells and monitoring devices are presently unknown, it is possible that any of the future wells and monitoring devices could be located within an area with a high potential for liquefaction. The flow meters will be located within surface water, and are small devices; no structures will be developed in association with these flow meters and as such no risk of loss, injury, or death associated liquefaction is anticipated to occur. The extensometers will be located within wells, and the proposed wells may be housed within a small structure. As such, because the locations for future wells and extensometers are unknown at this time, there is the potential for projects to be constructed and operated within an area with a high potential for liquefaction. The proposed wells located on or in soils with a moderate to high potential for liquefaction could experience damage or failure as a result of liquefaction. Therefore, adverse effects involving liquefaction would be potentially significant. As such, mitigation is required to minimize impacts under this issue through ensuring that new wells are analyzed thoroughly through a site-specific geotechnical report with specific design recommendations.

Project Category 2: Conveyance Facilities and Ancillary Facilities (PEs 2, 4-9)

This category includes the construction of 550,000 LF of new pipelines, booster pump stations, reservoirs and minor appurtenances whose number. The proposed conveyance facilities and ancillary facilities would be implemented throughout the entire Chino Basin.

Given that the locations of the proposed conveyance systems and ancillary facilities are presently unknown, it is possible that any of the conveyance systems and ancillary facilities could be located within an area with a high potential for liquefaction. As described in the Setting above, there are areas within the Chino Basin with a high potential for liquefaction. The pipelines and/or ancillary facilities located on or in soils with a moderate to high potential for liquefaction could experience damage or failure as a result of liquefaction. Therefore, mitigation is required to minimize impacts under this issue through ensuring that conveyance and ancillary facilities are analyzed thoroughly through a site-specific geotechnical report with specific design recommendations.

Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands (PEs 2, 4-5, 8/9)
This Project Category includes the construction of 310 acres of new storage basins—several locations for which are within existing facilities, improvements to existing storage basin(s), 200 acres of flood MAR facilities, new MS4-compliance facilities, and expansion of the maximum storage space (safe storage capacity) to be used within the Chino Basin from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af between this range of storage. The specific locations of the storage basins are described in the Project Description above; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

The storage facilities proposed under this project category would not include any aboveground, habitable structures. The ancillary facilities required to implement these projects are discussed under Project Category 2 above. However, given that the proposed storage basins may require a seal to retain the water, there is a potential for such facilities to be located on or in soils with a moderate to high potential for liquefaction, which may cause damage or failure as a result. Therefore, mitigation is required to minimize impacts under this issue through ensuring that new storage basins are analyzed thoroughly through a site-specific geotechnical report with specific design recommendations.

The proposed expansion of the safe storage capacity from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward would not result in any visible above ground impacts beyond those facilities associated with the OBMPU designed to support this expansion as discussed herein. As such, no risk of loss, injury, or death associated with liquefaction is anticipated to occur as a result of this proposed safe storage capacity expansion.

Project Category 4: Desalters and Water Treatment Facilities (PEs 2, 4-9)
The projects proposed under this category are: upgrades at IEUA's existing Treatment Plants (discussed in IEUA's 2017 FMP PEIR), a new advanced water treatment plant (discussed in IEUA's 2017 FMP PEIR), improvements to the WFA Agua de Lejos Treatment Plant, upgrades to the Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities. Seismic impacts related to the facilities thoroughly analyzed as part of the IEUA's 2017 FMP PEIR will not be analyzed further as part of this Initial Study.

Upgrades and improvements to existing facilities (WFA Agua de Lejos Treatment Plant, Chino Desalters) would occur within developed sites already containing desalter or water treatment facilities; none of these existing facilities is located on soils susceptible to liquefaction.

The proposed groundwater treatment facilities at well sites, existing groundwater treatment facilities (the precise locations of existing groundwater treatment facilities have not been mapped), regional groundwater treatment facilities and groundwater treatment facilities near well sites would occur at locations which are presently unknown. As such, there is a potential for such facilities to be located on or in soils with a moderate to high potential for liquefaction, which may cause damage or failure as a result. Therefore, mitigation is required to minimize impacts under this issue through ensuring that the treatment facilities under this Project Category are analyzed thoroughly through a site-specific geotechnical report with specific design recommendations.

Combined Project Categories

Level of Significance Before Mitigation: Potentially Significant

Mitigation Measures:

GEO-2: ***Prior to construction of each improvement, a design-level geotechnical investigation, including collection of site-specific subsurface data if appropriate, shall be completed. The geotechnical evaluation shall identify all potential seismic hazards including fault rupture, and characterize the soil profiles, including liquefaction potential, expansive soil potential, subsidence, and landslide potential. The geotechnical investigation shall***

recommend site-specific design criteria to mitigate for seismic and non-seismic hazards, such as special foundations and structural setbacks, and these recommendations shall be incorporated into the design of individual proposed projects.

Level of Significance After Mitigation: Less Than Significant

The implementation of Mitigation Measure (MM) **GEO-2** would reduce the potential impacts from liquefaction and landslide hazards through a design level geotechnical investigation with implementation of specific design recommendations.

a. *Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:*
   (iv) Landslides?

Project Category 1: Well Development and Monitoring Devices (PEs 1-9)
This Project Category includes the development of ASR, injection, pumping, groundwater level monitoring, and groundwater quality wells, associated well housing, as well as monitoring devices such as flow meters and extensometers. The proposed wells and monitoring devices will be installed throughout the Chino Basin.

Landslides and mudflow hazards exist throughout the Chino Basin on steep hillsides and in creek and streambed areas. Given that the locations of the proposed wells and monitoring devices are presently unknown, it is possible that any of the future wells and monitoring devices could be located within an area with a high potential for landslide. The flow meters will be located within surface water, and are small devices; no structures will be developed in association with these flow meters and as such no risk of loss, injury, or death associated landslide is anticipated to occur. The extensometers will be located within wells, and the proposed wells may be housed within a small structure. The proposed wells could experience damage or failure as a result of a landslide. Therefore, adverse effects involving landslide would be potentially significant. As such, mitigation is required to minimize impacts under this issue through ensuring that new wells are analyzed thoroughly through a site-specific geotechnical report with specific design recommendations.

Project Category 2: Conveyance Facilities and Ancillary Facilities (PEs 2, 4-9)
This category includes the construction of 550,000 LF of new pipelines, booster pump stations, reservoirs and minor appurtenances whose number. The proposed conveyance facilities and ancillary facilities would be implemented throughout the entire Chino Basin.

Landslides and mudflow hazards exist throughout the Chino Basin on steep hillsides and in creek and streambed areas. Given that the locations of the proposed conveyance systems and ancillary facilities are presently unknown, it is possible that any of the conveyance systems and ancillary facilities could be located within an area susceptible to landslides. The proposed conveyance and ancillary facilities could experience damage or failure as a result of a landslide. Therefore, adverse effects involving landslide would be potentially significant. Therefore, mitigation is required to minimize impacts under this issue through ensuring that conveyance and ancillary facilities are analyzed thoroughly through a site-specific geotechnical report with specific design recommendations.

Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands (PEs 2, 4-5, 8/9)
This Project Category includes the construction of 310 acres of new storage basins—several locations for which are within existing facilities, improvements to existing storage basin(s), 200 acres of flood MAR facilities, new MS4-compliance facilities, and expansion of the maximum storage space (safe storage capacity) to be used within the Chino Basin from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af between this range of storage. The specific locations of the storage basins are described in the Project Description above; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

The storage facilities proposed under this project category would not include any aboveground, habitable structures. The ancillary facilities required to implement these projects are discussed under Project Category 2 above. However, given that the proposed storage basins may require a seal to retain the water, there is a potential for those facilities to be constructed in areas susceptible to landslides, which may cause damage or failure as a result. Therefore, mitigation is required to minimize impacts under this issue through ensuring that new storage basins are analyzed thoroughly through a site-specific geotechnical report with specific design recommendations.

The proposed expansion of the safe storage capacity from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward would not result in any visible above ground impacts beyond those facilities associated with the OBMPU designed to support this expansion as discussed herein. As such, no risk of loss, injury, or death associated with landslides is anticipated to occur as a result of this proposed safe storage capacity expansion.

Project Category 4: Desalters and Water Treatment Facilities (PEs 2, 4-9)
The projects proposed under this category are: upgrades at IEUA's existing Treatment Plants (discussed in IEUA's 2017 FMP PEIR), a new advanced water treatment plant (discussed in IEUA's 2017 FMP PEIR), improvements to the WFA Agua de Lejos Treatment Plant, upgrades to the Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities. Seismic impacts related to the facilities thoroughly analyzed as part of the IEUA's 2017 FMP PEIR will not be analyzed further as part of this Initial Study.

Upgrades and improvements to existing facilities (WFA Agua de Lejos Treatment Plant, Chino Desalters) would occur within developed sites already containing desalter or water treatment facilities; none of these existing facilities is located in an area susceptible to landslide.

Landslides and mudflow hazards exist throughout the Chino Basin on steep hillsides and in creek and streambed areas. The proposed groundwater treatment facilities at well sites, existing groundwater treatment facilities (the precise locations of existing groundwater treatment facilities have not been mapped), regional groundwater treatment facilities and groundwater treatment facilities near well sites would occur at locations which are presently unknown. As such, there is a potential for such facilities to be to be constructed in areas susceptible to landslides, which may cause damage or failure as a result. Therefore, mitigation is required to minimize impacts under this issue through ensuring that the treatment facilities under this Project Category are analyzed thoroughly through a site-specific geotechnical report with specific design recommendations.

Combined Project Categories

Level of Significance Before Mitigation: Potentially Significant

Mitigation Measures: Refer to Mitigation Measure **GEO-2**, above.

Level of Significance After Mitigation: Less Than Significant

The implementation of Mitigation Measure (MM) **GEO-2** would reduce the potential impacts from liquefaction and landslide hazards through a design level geotechnical investigation with implementation of specific design recommendations.

b. Result in substantial soil erosion or the loss of topsoil?

Project Category 1: Well Development and Monitoring Devices (PEs 1-9)
This Project Category includes the development of ASR, injection, pumping, groundwater level monitoring, and groundwater quality wells, associated well housing, as well as monitoring devices such as flow meters and extensometers. The proposed wells and monitoring devices will be installed throughout the Chino Basin.

Construction activities for proposed well development projects such as excavation and grading could result in soil erosion during rain or high wind events. Flow meters will be located within surface water, and are small devices that would not require grading or excavation to place. These devices would require a few trips to each site, which may result in some ground disturbance, but this would be temporary and would not occur on a frequent basis. Development of the proposed wells would result in construction activities that would need to comply with South Coast Air Quality Management District (SCAQMD) Rule 403 for dust control that would ensure the prevention and/or management of wind erosion and subsequent topsoil loss. Compliance with SCAQMD Rule 403 would ensure that construction activities that generate wind-induced soil erosion are below significance thresholds.

As stated in the project description, well development is anticipated to occur within sites that would disturb less than half an acre, and as such no Storm Water Pollution Prevention Plan (SWPPP) would be required. However, in order to prevent erosion associated with runoff from construction sites for each proposed project, the implementing agency will abide by best management practices (BMPs) to ensure that the discharge of storm runoff from construction sites does not cause erosion downstream to the discharge point. The implementation of BMPs will be enforced through mitigation identified below. Additionally, for these well development projects, which are anticipated to be less than one acre in size, compliance with minimum BMPs, as specified by the San Bernardino County MS4 Permit (SARWQCB, 2016) that includes each of the seven cities within the Chino Basin as co-permittees, shall include erosion and sediment control BMPs for the construction site. Adherence to these conditions and the mitigation provided below would ensure that potential soil erosion and loss of topsoil impacts would be minimized to less than significant.

Project Category 2: Conveyance Facilities and Ancillary Facilities (PEs 2, 4-9)

This category includes the construction of 550,000 LF of new pipelines, booster pump stations, reservoirs and minor appurtenances whose number. The proposed conveyance facilities and ancillary facilities would be implemented throughout the entire Chino Basin.

Construction activities for proposed conveyance and ancillary facility projects such as excavation and grading could result in soil erosion during rain or high wind events. As stated above, development of the proposed wells would result in construction activities that would need to comply with SCAQMD Rule 403 for dust control that would ensure the prevention and/or management of wind erosion and subsequent topsoil loss. Compliance with SCAQMD Rule 403 would ensure that construction activities that generate wind-induced soil erosion are below significance thresholds.

To prevent erosion associated with runoff from construction sites for each proposed project, the implementing agency would be required to prepare and implement a SWPPP in accordance with the requirements of the statewide Construction General Permit (CGP) (State Water Resources Control Board [SWRCB] Water Quality Order 2009-0009-DWQ). The SWPPP would identify best management practices (BMPs) to control erosion, sedimentation, and hazardous materials potentially released from construction sites into surface waters. Compliance with the CGP, required SWPPP, and identified BMPs would ensure soil erosion and loss of topsoil impacts would be reduced to a level of less than significant.

As stated above, should an individual proposed project result in disturbance of less than one acre during construction activities, then the CGP would not apply to the particular project. In order to prevent erosion associated with runoff from construction sites for each proposed project, the implementing agency will abide by BMPs to ensure that the discharge of storm runoff from construction sites does not cause erosion downstream to the discharge point. The implementation of BMPs will be enforced through mitigation identified below. Additionally, for conveyance and ancillary facility projects that are less than one acre in size, compliance with minimum BMPs, as specified by the San Bernardino County MS4 Permit (SARWQCB, 2016) that includes each of the seven cities within the Chino Basin as co-permittees, shall include erosion and sediment control BMPs for the construction site. Adherence to these conditions and the mitigation provided below would ensure that potential soil erosion and loss of topsoil impacts would be minimized to less than significant.

Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands (PEs 2, 4-5, 8/9)
This Project Category includes the construction of 310 acres of new storage basins—several locations for which are within existing facilities, improvements to existing storage basin(s), 200 acres of flood MAR facilities, new MS4-compliance facilities, and expansion of the maximum storage space (safe storage capacity) to be used within the Chino Basin from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af between this range of storage. The specific locations of the storage basins are described in the Project Description above; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

Impacts related to soil erosion and the loss of topsoil from construction of storage basins and recharge facilities are anticipated to be the same as that which is discussed under Project Categories 1 and 2 above.

The proposed expansion of the safe storage capacity from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward would not result in any visible above ground impacts beyond those facilities associated with the OBMPU designed to support this expansion as discussed herein. As such, no soil erosion or loss of topsoil are anticipated.

Project Category 4: Desalters and Water Treatment Facilities (PEs 2, 4-9)
The projects proposed under this category are: upgrades at IEUA's existing Treatment Plants (discussed in IEUA's 2017 FMP PEIR), a new advanced water treatment plant (discussed in IEUA's 2017 FMP PEIR), improvements to the WFA Agua de Lejos Treatment Plant, upgrades to the Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities. Seismic impacts related to the facilities thoroughly analyzed as part of the IEUA's 2017 FMP PEIR will not be analyzed further as part of this Initial Study.

Impacts related to soil erosion and the loss of topsoil from construction of desalters and water treatment facilities are anticipated to be the same as that which is discussed under Project Categories 1, 2, and 3 above.

Combined Project Categories

Level of Significance Before Mitigation: Potentially Significant

Mitigation Measures:

GEO-3: ***For each well development or other OBMPU projects that is less than one acre in size requiring ground disturbing activities such as grading, the Implementing Agency shall identify best management practices (BMPs, such as hay bales, wattles, detention basins, silt fences, coir rolls, etc.) to ensure that the discharge of the storm runoff from the construction site does not cause erosion downstream of the discharge point. If any substantial erosion or sedimentation occurs as a result of discharging storm water from a project construction site, any erosion or sedimentation damage shall be restored to pre-discharge conditions.***

Level of Significance After Mitigation: Less Than Significant

The implementation of Mitigation Measure **GEO-3** would ensure that the proposed facilities associated with the OBMPU that are less than one acre in size would not exacerbate conditions related to erosion associated with runoff from construction sites through the implementation of BMPs.

c. *Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in onsite or offsite landslide, lateral spreading, subsidence, liquefaction or collapse?*

Project Category 1: Well Development and Monitoring Devices (PEs 1-9)
This Project Category includes the development of ASR, injection, pumping, groundwater level monitoring, and groundwater quality wells, associated well housing, as well as monitoring devices such as flow meters and extensometers. The proposed wells and monitoring devices will be installed throughout the Chino Basin.

Non-seismically induced geologic hazards such as landslides, subsidence, lateral spreading, settlement, and slope failure can be caused by unstable soils, which occur within the Chino Basin area. Soil instability from landslides, subsidence, lateral spreading, settlement, and slope failure can cause collapse of structures. Given that the locations of the proposed wells and monitoring devices are presently unknown, it is possible that any of the future wells could be located within a site with unstable soils; furthermore, groundwater pumping facilities could cause aquifer system compaction and land subsidence, which is known to occur within the Chino Basin. The flow meters are small devices that will be located on the wellhead; as such soil stability is not of a concern for these devices. The extensometers will be located within monitoring wells, and the proposed monitoring wells may be housed within a small structure. The proposed wells located on or in unstable soils could experience damage or failure as a result. Additionally, subsidence and collapse could damage the proposed facilities and affect the safety of on-site or visiting employees. Therefore, adverse effects involving unstable soils would be potentially significant. As such, mitigation is required to minimize impacts under this issue through ensuring that new wells are analyzed thoroughly through a site-specific geotechnical report with specific design recommendations.

Project Category 2: Conveyance Facilities and Ancillary Facilities (PEs 2, 4-9)
This category includes the construction of 550,000 LF of new pipelines, booster pump stations, reservoirs and minor appurtenances whose number. The proposed conveyance facilities and ancillary facilities would be implemented throughout the entire Chino Basin.

Non-seismically induced geologic hazards such as landslides, subsidence, lateral spreading, settlement, and slope failure can be caused by unstable soils, which occur within the Chino Basin area. Soil instability from landslides, subsidence, lateral spreading, settlement, and slope failure can cause collapse of structures. Given that the locations of the conveyance and ancillary facilities are presently unknown, it is possible that any of the future conveyance and ancillary facilities could be located within a site with unstable soils. The proposed conveyance and ancillary facilities located on or in unstable soils could experience damage or failure as a result. Additionally, subsidence and collapse could damage the proposed facilities and affect the safety of on-site or visiting employees. Therefore, adverse effects involving unstable soils would be potentially significant. As such, mitigation is required to minimize impacts under this issue through ensuring that conveyance and ancillary facilities are analyzed thoroughly through a site-specific geotechnical report with specific design recommendations.

Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands (PEs 2, 4-5, 8/9)
This Project Category includes the construction of 310 acres of new storage basins—several locations for which are within existing facilities, improvements to existing storage basin(s), 200 acres of flood MAR facilities, new MS4-compliance facilities, and expansion of the maximum storage space (safe storage capacity) to be used within the Chino Basin from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af between this range of storage. The specific locations of the storage basins are described in the Project Description above; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

Non-seismically induced geologic hazards such as landslides, subsidence, lateral spreading, settlement, and slope failure can be caused by unstable soils, which occur within the Chino Basin area. The storage facilities proposed under this project category would not include any aboveground, habitable structures. The ancillary facilities required to implement these projects are discussed under Project Category 2 above. However, given that the proposed storage basins may require a seal to retain the water, there is a potential for such facilities to be located on unstable soils, which may cause damage or failure as a result. Therefore, mitigation is required to minimize impacts under this issue through ensuring that new storage basins are analyzed thoroughly through a site-specific geotechnical report with specific design recommendations.

The proposed expansion of the safe storage capacity from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward would not result in any visible above ground impacts beyond those facilities associated with the OBMPU designed to support this expansion as discussed herein. As such, no impacts related to soil instability are anticipated to occur.

Project Category 4: Desalters and Water Treatment Facilities (PEs 2, 4-9)
The projects proposed under this category are: upgrades at IEUA's existing Treatment Plants (discussed in IEUA's 2017 FMP PEIR), a new advanced water treatment plant (discussed in IEUA's 2017 FMP PEIR), improvements to the WFA Agua de Lejos Treatment Plant, upgrades to the Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities. Seismic impacts related to the facilities thoroughly analyzed as part of the IEUA's 2017 FMP PEIR will not be analyzed further as part of this Initial Study.

Non-seismically induced geologic hazards such as landslides, subsidence, lateral spreading, settlement, and slope failure can be caused by unstable soils, which occur within the Chino Basin area. Upgrades and improvements to existing facilities (WFA Agua de Lejos Treatment Plant, Chino Desalters), proposed groundwater treatment facilities at well sites, existing groundwater treatment facilities (the precise locations of existing groundwater treatment facilities have not been mapped), regional groundwater treatment facilities and groundwater treatment facilities may involve groundwater pumping facilities that could cause aquifer system compaction and land subsidence. However, the overall OBMPU facilities are, when combined, intended to minimize the potential for land subsidence that is known to occur within the Chino Basin. Construction and operation of the proposed facilities would not cause subsidence; rather, proposed facilities, though not anticipated to be affected by historic subsidence, could be exposed to future subsidence and collapse risk due to the circumstances known to exist within the treatment facility locations. As such, there is a potential for such facilities to be located on unstable soils, which may cause damage or failure as a result. Therefore, mitigation is required to minimize impacts under this issue through ensuring that the treatment facilities under this Project Category are analyzed thoroughly through a site-specific geotechnical report with specific design recommendations.

Combined Project Categories

Level of Significance Before Mitigation: Potentially Significant

Mitigation Measures: Refer to MM **GEO-2**, above.

Level of Significance After Mitigation: Less Than Significant

The implementation of MM **GEO-2** would reduce the potential impacts related to unstable soils through a design level geotechnical investigation with implementation of specific design recommendations for future OBMPU projects.

d. *Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?*

Project Category 1: Well Development and Monitoring Devices (PEs 1-9)
This Project Category includes the development of ASR, injection, pumping, groundwater level monitoring, and groundwater quality wells, associated well housing, as well as monitoring devices such as flow meters and extensometers. The proposed wells and monitoring devices will be installed throughout the Chino Basin.

When expansive soils swell, the change in volume can exert significant pressures on loads that are placed on them, such as loads resulting from structure foundations or underground utilities, and can result in structural distress and/or damage. Most of the Chino Basin is comprised of old alluvial fans and valley deposits, which vary in consistency. As stated above, soils throughout the project area mainly consist of sandy loams that show little change with moisture variation, and thus do not typically exhibit expansive soil characteristics. The specific soil properties of a site can vary on a small scale, and may include undetermined areas that exhibit expansive properties. Given that the location of well development sites and extensometers will be located within wells, there is a potential that such facilities could be installed within a site containing expansive soils. The flow meters are small devices that will be located within surface water; as such the presence of expansive soils is not of a concern for these devices. Therefore, adverse effects involving expansive soils would be potentially significant. As such, mitigation is required to minimize impacts under this issue through ensuring that new wells are analyzed thoroughly through a site-specific geotechnical report with specific design recommendations.

Project Category 2: Conveyance Facilities and Ancillary Facilities (PEs 2, 4-9)
This category includes the construction of 550,000 LF of new pipelines, booster pump stations, reservoirs and minor appurtenances whose number. The proposed conveyance facilities and ancillary facilities would be implemented throughout the entire Chino Basin.

Proposed pipelines would be installed belowground; soils with expansive characteristics could exert pressure on the pipelines during times of saturation, potentially threatening pipeline stability. Similar to Project Category 1 facilities, the foundation of the ancillary facilities could also be damaged by expansive soils. Identified soil types within the Chino Basin area do not have expansive soil characteristics since they do not have a large amount of clay (expansive soils are typically of a clay type); however, specific sites could have undetected expansive characteristics. Therefore, adverse effects involving expansive soils would be potentially significant. As such, mitigation is required to minimize impacts under this issue through ensuring that conveyance and ancillary facilities are analyzed thoroughly through a site-specific geotechnical report with specific design recommendations.

Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands (PEs 2, 4-5, 8/9)
This Project Category includes the construction of 310 acres of new storage basins—several locations for which are within existing facilities, improvements to existing storage basin(s), 200 acres of flood MAR facilities, new MS4-compliance facilities, and expansion of the maximum storage space (safe storage capacity) to be used within the Chino Basin from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af between this range of storage. The specific locations of the storage basins are described in the Project Description above; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

Proposed recharge basins and wells could saturate soils and create expansive soil characteristics that did not exist previously. The storage facilities proposed under this project category would not include any aboveground, habitable structures. The ancillary facilities required to implement these projects are discussed under Project Category 2 above. However, given that the proposed storage basins may require a seal to retain the water, there is a potential for such facilities to be located on expansive soils, which may cause damage or failure as a result. Therefore, mitigation is required to minimize impacts under this issue through ensuring that new storage basins are analyzed thoroughly through a site-specific geotechnical report with specific design recommendations.

The proposed expansion of the safe storage capacity from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward would not result in any visible above ground impacts beyond those facilities associated with the OBMPU designed to support this expansion as discussed herein. As such, no impacts related to expansive soils are anticipated to occur.

Project Category 4: Desalters and Water Treatment Facilities (PEs 2, 4-9)
The projects proposed under this category are: upgrades at IEUA's existing Treatment Plants (discussed in IEUA's 2017 FMP PEIR), a new advanced water treatment plant (discussed in IEUA's 2017 FMP PEIR), improvements to the WFA Agua de Lejos Treatment Plant, upgrades to the Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities. Seismic impacts related to the facilities thoroughly analyzed as part of the IEUA's 2017 FMP PEIR will not be analyzed further as part of this Initial Study.

As stated above, soils throughout the project area mainly consist of sandy loams that show little change with moisture variation, and thus do not typically exhibit expansive soil characteristics. Therefore, the project facilities would be located in areas of low soil expansion potential. However, the specific soil properties of a site can vary on a small scale, and may include undetermined areas that exhibit expansive properties. The presence of expansive soils at the existing treatment facility sites could decrease the structural stability of the proposed project facilities, which could result in structural or operational failure of these facilities and or threaten the health and safety of on-site workers. Such impacts are considered potentially significant. Therefore, mitigation is required to minimize impacts under this issue through ensuring that the treatment facilities under this Project Category are analyzed thoroughly through a site-specific geotechnical report with specific design recommendations.

Combined Project Categories

Level of Significance Before Mitigation: Potentially Significant

Mitigation Measures: Refer to MM **GEO-2**, above.

Level of Significance After Mitigation: Less Than Significant

The implementation of MM **GEO-2** would reduce the potential impacts related to expansive soils through a design level geotechnical investigation with implementation of specific design recommendations for future OBMPU projects.

e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

Project Category 1: Well Development and Monitoring Devices (PEs 1-9)
Implementation of proposed well development and monitoring devices associated with the OBMPU would not require the use of septic systems. There is no planned use of on-site septic systems for the proposed OBMPU projects proposed under this Project Category. Therefore, no impact would occur related to soil suitability for septic systems.

Project Category 2: Conveyance Facilities and Ancillary Facilities (PEs 2, 4-9)
Implementation of proposed conveyance and ancillary facilities would not include facilities that would require the use of septic systems. The majority of facilities would be upgrades to existing infrastructure, wells, pipelines, and other water conveyance facilities that do not require septic systems. There is no planned use of on-site septic systems for the proposed project facilities. Therefore, no impact would occur related to soil suitability for septic systems.

Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands (PEs 2, 4-5, 8/9)
Impacts would be the same as Project Category 1 and 2.

Project Category 4: Desalters and Water Treatment Facilities (PEs 2, 4-9)
Impacts would be the same as Project Categories 1, 2, and 3.

Combined Project Categories

Level of Significance Before Mitigation: No Impact

Mitigation Measures: None required.

Level of Significance After Mitigation: No Impact *f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?*

Project Category 1: Well Development and Monitoring Devices (PEs 1-9)
This Project Category includes the development of ASR, injection, pumping, groundwater level monitoring, and groundwater quality wells, associated well housing, as well as monitoring devices such as flow meters and extensometers. The proposed wells and monitoring devices will be installed throughout the Chino Basin.

The General Plans for the cities and unincorporated portions within the Chino Basin indicate that some portions of the Chino Basin areas are highly sensitive for paleontological resources. Since the proposed project is at the programmatic level, specific locations for the proposed wells have not been have yet to be determined. As such, impacts to specific paleontological resources are speculative. Previously unknown and unrecorded paleontological resources may be unearthed during excavation and grading activities for individual projects. If previously unknown potentially unique paleontological resources are uncovered during excavation or construction, significant impacts could occur. Therefore, mitigation will be implemented that would require site-specific studies to identify potentially significant paleontological resources. Additional studies would minimize potential impacts to paleontological resources.

Project Category 2: Conveyance Facilities and Ancillary Facilities (PEs 2, 4-9)
This category includes the construction of 550,000 LF of new pipelines, booster pump stations, reservoirs and minor appurtenances whose number. The proposed conveyance facilities and ancillary facilities would be implemented throughout the entire Chino Basin.

Impacts would be the same as Project Category 1.

Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands (PEs 2, 4-5, 8/9)
This Project Category includes the construction of 310 acres of new storage basins—several locations for which are within existing facilities, improvements to existing storage basin(s), 200 acres of flood MAR facilities, new MS4-compliance facilities, and expansion of the maximum storage space (safe storage capacity) to be used within the Chino Basin from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af between this range of storage. The specific locations of the storage basins are described in the Project Description above; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

Impacts would be the same as Project Category 1 and 2.

Project Category 4: Desalters and Water Treatment Facilities (PEs 2, 4-9)
The projects proposed under this category are: upgrades at IEUA's existing Treatment Plants (discussed in IEUA's 2017 FMP PEIR), a new advanced water treatment plant (discussed in IEUA's 2017 FMP PEIR), improvements to the WFA Agua de Lejos Treatment Plant, upgrades to the Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities. Seismic impacts related to the facilities thoroughly analyzed as part of the IEUA's 2017 FMP PEIR will not be analyzed further as part of this Initial Study.

Impacts would be the same as Project Category 1-3.

Combined Project Categories

Level of Significance Before Mitigation: Potentially Significant

Mitigation Measures:

GEO-4: ***For project-level development involving ground disturbance, a qualified paleontologist shall be retained to determine the necessity of conducting a study of the project area(s) based on the potential sensitivity of the project site for paleontological resources. If***

> ***deemed necessary, the paleontologist shall conduct a paleontological resources inventory designed to identify potentially significant resources. The paleontological resources inventory would consist of: a paleontological resource records search to be conducted at the San Bernardino County Museum and/or other appropriate facilities; a field survey or monitoring where deemed appropriate by the paleontologist; and recordation of all identified paleontological resources.***

Level of Significance Before Mitigation: Less Than Significant

The implementation of Mitigation Measure **GEO-4** would require a site-specific study to identify potentially significant paleontological resources, which would minimize potential impacts to paleontological resources.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
VIII. GREENHOUSE GAS EMISSIONS: Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☒	☐	☐	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☒	☐	☐	☐

SUBSTANTIATION

a&b. *Potentially Significant Impact* – Cumulatively, the facilities proposed by the OBMPU may result in construction related and operational greenhouse gas (GHG) emissions. These emissions may exceed applicable thresholds for GHG emissions or otherwise conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases. This issue will be further evaluated in the EIR.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
IX. HAZARDS AND HAZARDOUS MATERIALS: Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☒	☐	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☒	☐	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☒	☐	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☒	☐	☐
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☒	☐	☐
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☒	☐	☐

SUBSTANTIATION

This section describes and evaluates issues related to hazards and hazardous materials within the Chino Basin. Discussed are the physical and regulatory settings, the baseline for determining environmental impacts, the criteria used for determining the significance of environmental impacts, and potential impacts and appropriate mitigation measures associated with implementation of the OBMPU. Much of the information below is based on the 2016 IEUA Facilities Master Plan Final Environmental Impact Report (SCH#2016061064), February 2017 prepared by ESA (2017 FMP EIR).

IX.1 Environmental Setting

Introduction

The term “hazardous materials” refers to both hazardous substances and hazardous wastes. Under federal and state laws, any material, including wastes, may be considered hazardous if it is specifically listed by statute as such, or if it is toxic (causes adverse human health effects), ignitable (has the ability to burn), corrosive (causes severe burns or damage to materials), or reactive (causes explosions or generates toxic gases). The term “hazardous material” is defined as any material that, because of quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment.[32]

In some cases, past industrial or commercial activities on a site or an accidental spill could have resulted in spills or leaks of hazardous materials to the ground, resulting in soil and/or groundwater contamination. Hazardous materials may also be present in building materials and released during building demolition activities. If improperly handled, hazardous materials can cause health hazards when released to the soil, groundwater, or air. Individuals are typically exposed to hazardous materials through inhalation or bodily contact. Exposure can come as a result of an accidental release during transportation, storage, or handling of hazardous materials. Disturbance of subsurface soil during construction can also lead to exposure of workers or the public from stockpiling, handling, or transportation of soils contaminated by hazardous materials from previous spills or leaks.

Chino Basin Service Area

This section describes the existing conditions of the Chino Basin (where the OBMPU will be implemented) with respect to hazards and hazardous materials. It discusses the potential to encounter hazardous materials in soil and/or groundwater in this area, potential fire hazards, and potential hazards related to proximity to schools and airports.

Hazardous Building Materials

Hazardous materials, such as asbestos-containing materials (ACM), lead-based paint (LBP), and polychlorinated biphenyls (PCBs), may be contained in building materials and released during demolition activities. The likelihood of hazardous materials in building components can be generally assessed based on the age of the structures, as these materials were phased out of use during the 1970s and 1980's. Any structures proposed for demolition in support of the OBMPU Program Elements will require evaluation of the date of construction and possible inspections by qualified professional to determine presence of ACM, LBP or PCB.

Asbestos Potential

Asbestos is a naturally-occurring fibrous material that was used as a fireproofing and insulating agent in building construction before such uses were banned by the U.S. Environmental Protection Agency (U.S. EPA) in the 1970's, although some nonfriable[33] use of asbestos in roofing materials still exists. The presence of asbestos can be found in such materials as ducting insulation, wallboard, shingles, ceiling tiles, floor tiles, insulation, plaster, floor backing, lining for piping, and many other building materials. ACMs are considered both a hazardous air pollutant and a human health hazard. The risk to human health is from inhalation of airborne asbestos, which commonly occurs when ACMs are disturbed during demolition and renovation activities.

Lead Potential

Lead and lead compounds can be found in many types of paint. In 1978, the Consumer Product Safety Commission set the allowable lead levels in paint at 0.06 percent by weight in a dry film of newly applied paint. Lead dust is of special concern, because the smaller particles are more easily absorbed by the body. Common methods of paint removal, such as sanding, scraping, and burning, create excessive amounts of dust. Lead based paints are considered likely present in buildings constructed prior to 1960, and potentially present in buildings built prior to 1978.

PCBs Potential

PCBs are organic oils that were formerly placed in many types of electrical equipment, such as transformers and capacitors, primarily as electrical insulators. They may also be found in hydraulic fluid used for hoists, elevators, etc. Years after widespread and commonplace installation, it was discovered that exposure to PCBs may cause various health effects and that PCBs are highly persistent in the environment. The EPA

[32] State of California Health and Safety Code Chapter 6.95, Section 25501(p).
[33] Nonfriable asbestos refers to ACMs that contain asbestos fibers in a solid matrix that does not allow for them to be easily released.

has listed these substances as carcinogens. PCBs were banned from use in electrical capacitors, electrical transformers, vacuum pumps, and gas turbines in 1979.

Household Hazardous Materials

Household hazardous waste is generated at a place of residence, as defined in Section 25218.1 (e) of the California Health and Safety Code. Examples of common household hazardous wastes include antifreeze, household batteries, compressed gas cylinders, television/computer monitors, consumer electronic devices, home-generated sharps (e.g., needles, syringes, and lancets), oil-based paints, latex paints, motor oil, used oil filters, rodent poison, asbestos, gasoline, fluorescent lamps, partially used aerosol containers, and weed killers (CIWMB, 2002). A household hazardous waste collection facility is commonly operated by local public agencies or their contractors for the purposes of collecting, handling, treating, storing, recycling, or disposing of household hazardous wastes (Health and Safety Code Section 2518.1 (f)). A household hazardous waste collection facility may also accept wastes from small businesses that are conditionally exempt generators, defined as a small business that generates no more than 100 kilograms of hazardous waste per month.

The Valley region of San Bernardino County has multiple hazardous waste collection centers for permanent household hazardous waste located in the City of Chino, Upland, Ontario, and Rancho Cucamonga. Most facilities accept items such as lawn and garden care products, paint and paint-related products, automotive fluids and batteries, beauty products and medicines, household cleaners, electronic waste, and other common household hazardous wastes (SBCFD, 2016).

Hazardous Materials in Soil and Groundwater

Human activities have caused a variety of contamination within the Chino Basin. Historically, most cities within the region contained agricultural lands that utilized pesticides which may have contaminated soils throughout the project area. Several of the project areas envisioned for future OBMPU facilities may occupy agricultural areas where pesticide and herbicide use were once common. Soils in such areas can retain residual concentrations of such materials that may exceed significance thresholds. Future excavations in such areas may requires special management, disposal, or blending with clean soils to reduce concentrations to acceptable levels. Furthermore, airports, gas stations, landfills, and other industrial facilities have resulted in contamination of groundwater. Groundwater plumes exist throughout the Chino Basin but are primarily concentrated around southern Ontario and Chino (SWRCB, 2016).

To assess the potential for contamination in soil and groundwater within the project area an environmental database review was conducted to identify environmental cases,[34] permitted hazardous materials uses,[35] and spill sites.[36] California Government Code Section 65962.5 requires state and local agencies to compile and update, at least annually, lists of hazardous waste sites and facilities. While Government Code Section 65962.5 makes reference to a “list”, commonly referred to as the Cortese List, this information is currently available from the following online data resources (California Environmental Protection Agency [CalEPA], 2016):

- State Water Resources Control Board (SWRCB) GeoTracker database, and
- California Department of Toxic Substances Control (DTSC) EnviroStor database.

Information regarding the potential presence of subsurface contamination within the Chino Basin is discussed below. Identified sites include the following types of environmental cases:

<u>EnviroStor Certified/Operation & Maintenance</u>: These are former industrial manufacturing facilities. Following environmental cleanup, residual contamination remains in soil and/or groundwater. The DTSC

[34] Environmental cases are those sites that are suspected of releasing hazardous substances or have had cause for hazardous substances investigations and are identified on regulatory agency lists.
[35] Permitted hazardous materials uses are facilities that use hazardous materials or handle hazardous wastes that operate under appropriate permits and comply with current hazardous materials and hazardous waste regulations.
[36] Spill sites are locations where a spill has been reported to the State or federal regulatory agencies. Such spills do not always involve a release of hazardous materials.

has determined that contamination is not a threat to human health or the environment if undisturbed; however, land use restrictions apply to any subsurface excavation.

EnviroStor DTSC Sites: The DTSC oversees cleanup at facilities with a variety of environmental concerns. It also identifies facilities for further investigation based on their past or present uses, which could have caused hazardous materials releases.

GeoTracker LUST Cleanup Sites: Leaking Underground Storage Tank (LUST) sites are typically listed as a result of a release of petroleum hydrocarbons such as diesel, gasoline, motor oil and waste oil. A few sites are listed because of releases of dry-cleaning solvents. Open cases may be in the site assessment phase to investigate the extent of known releases or undergoing active remediation of groundwater contamination.

Table IX-1 shows the hazardous waste site type and number of hazardous waste sites found within the Chino Basin area.

Table IX-1
LISTED SITES WITHIN THE PROJECT AREA

Hazardous Waste Site Type	Number of Sites
EnviroStor DTSC Cleanup Sites	99
GeoTracker LUST Cleanup Sites	23
EnviroStor Cleanup Program Sites	26
EnviroStor Land Disposal Sites	8
Geo Tracker DTSC Hazardous Waste Permit Sites	15
Total	171 sites
SOURCE: EnviroStor, GeoTracker, 2016	

Below is a list and brief description of hazardous materials release sites in the Chino Basin that have affected soil and/or groundwater. Exhibit shows the location of contamination plumes resulting from past industrial activities in the service area (Chino Basin Watermaster, 2013a).

Active Sites

Chino Airport
The Chino Airport is located at 7000 Merrill Avenue in the city of Chino. This site has been the subject of ongoing site assessments and clean ups under regulatory oversight of the Regional Water Quality Control Board (RWQCB) since 1990. This site is not on the national priorities list. From the early 1940s until 1948, the airport was used for flight training and aircraft storage. Since then, activities at this site included modification of military aircraft, crop dusting, aircraft engine-repair, painting, striping and washing, dispensing of fire-retardant chemicals and general aircraft maintenance. The primary chemicals of concern in the groundwater at the site are trichloroethene, 1,2,3-trichloropropane, cis-1,2-dichloroethene, 1,2-dichlorothethane, and 1,1-dichloroethene. Offsite plume characterization field activities were initiated in 2007. The depth of groundwater ranged from 25 to 50 feet below ground surface (bgs), with the depth to water decreasing toward the south. Since the 2007 investigation, groundwater monitoring wells have been installed throughout the site for sampling. Groundwater is pumped in this area by production wells and used for agricultural supply, industrial supply and municipal water supply. The drinking water supply is of primary concern (SWRCB, 2015a).

GE Engine Services Test Cell Facility
The GE Engine Services is located at 2264 E. Avion Place in the city of Ontario. This site has been the subject of ongoing site assessments and clean ups under regulatory oversight of the DTSC and RWQCB since 2013, but is not listed on the National Priorities List. General Electric (GE) has operated a jet engine

facility at this site from 1956 to the present where both commercial and military engines are tested. About 6,000 gallons of hazardous waste were disposed of in dry wells. There is an estimated 600 cubic yards of waste and contaminated spill on the site. Results of preliminary investigation in 1987 indicated the presence of 1,1,1-trichlorethane (TCA), tetrachlorethene (PCE), chloroform, naphthalene, 2-methylnaphthalene, and volatile aromatics (xylene, toluene, ethylbenzene) in soils near the dry wells. As a result, chemical contaminants affected the groundwater, and a plume extends in a southwesterly direction to Grove Avenue. Concentrations of volatile organic compounds (VOCs) in shallow soils in areas at the site have reached acceptable closure levels. In April 2015, RWQCB stated that soil is no longer a source of the releases to groundwater. DTSC will proceed with the Land Use Covenant (LUC) to complete the site soil vapor remediation (DTSC, 2007a).

GE Flatiron Facility

The GE Flatiron is located at 234 Main Street in Ontario. The site has been the subject of ongoing site assessments and clean ups under regulatory oversight of the RWQCB. The site is listed as an Open Cleanup Program Site undergoing remediation. This flatiron facility operated from 1927 to 1982. Since 1982, the property has been owned by Ontario Business Park and has been occupied by commercial and light industrial uses. Soil and groundwater beneath the facility has been contaminated. The depth of groundwater beneath the site is from 200 to 380 feet. The contaminants present in the groundwater are TCE, PCE, and chromium (Cr). The groundwater contaminate plume extended over 1/2- mile in width and approximately 1.5 miles in length in the southwesterly direction along the groundwater flow path. The contaminants present in soil are: PCE, TCE, Cr, total xylenes, toluene, ethylbenzene, 1,1,1- trichloroethene, and 1,1,2-trichloroethane. In December of 2009, a total of 2,406 pounds of VOCs (primarily TCE) and 769 pounds of chromium were removed and treated (SWRCB, 2015b).

Kaiser Steel Site

The Kaiser Steel site is located at 9400 Cherry Avenue in Fontana. Site assessments have been ongoing since 2012 by the RWQCB and the DTSC. This site is not on the national priorities list. Kaiser Steel is the result of merging four different Kaiser Steel Sites. The original Kaiser Steel Mill was located on approximately 1,200 acres in Fontana. The facility was a former integrated steel production plant that the Kaiser Steel Corporation owned and operated from approximately 1942 to 1983. Following shutdown, portions of the original Kaiser property were sold or otherwise transferred. The Department became aware of the potential presence of hazardous waste in 1985, when asbestos and liquids from a benzol production area were released during demolition of onsite structures. The asbestos was removed and is no longer of concern. In August 1988, and January 1989, Preliminary Assessment/Site Inspection Reports (PA/SI) were completed in an effort to identify areas of contamination. Of the 32 areas investigated, 12 were identified as requiring no further action and 20 were recommended for remedial investigation. Through further testing, constituents of concern detected at the sites included metals, petroleum, Polychlorinated Biphenyls (PCBs), Polycyclic Aromatic Hydrocarbons (PAHS), radioactive isotopes, and VOCs such as benzene and toluene. The past uses of the sites that caused groundwater contamination include: hazardous waste treatment, landfill and construction, metal plating and manufacturing, sewage and waste treatment, sewage treatment ponds, and wastewater ponds. Groundwater contamination is currently being monitored (DTSC, 2007b).

Milliken Sanitary Landfill (MSL)

The Milliken Landfill is located at 2050 South Milliken Avenue in Ontario and has been undergoing monitoring as of 2014 by the RWQCB. The MSL is owned and operated by the County of San Bernardino Solid Waste Management Division. The total area of the MSL is 196 acres of which 140 acres were used for waste disposal. MSL has an estimated in-place volume of 25 million cubic yards of solid waste and cover material. MSL was operated as a Class III Sanitary Landfill from 1956 to March 1999. The landfill is undergoing corrective action, however recent monitoring has shown decreases of contaminant levels in soil and no statistical anomalies were identified for metals or VOCs. The majority of the monitoring wells have become dry and over the last two years, increasing trends are noted for most inorganics in samples. As of 2014, VOCs remain below state water drinking standards (SWRCB, 2015c).

Algar Manufacturing Company Inc.

The Algar Manufacturing Company, a Cleanup Program Site, is located at 724 Bon View in Ontario and has been under investigation by the RWQCB since 2000. In 1981, the City of Ontario inspectors conducted an inspection of the property in response to a complaint about heavy accumulation of oil throughout the interior of the buildings. Several building alterations and additions, which were completed without proper permits, including oil tanks installed below the floor of one building. In 1992 a site investigation selected soil samples for volatile organic compounds VOCs and TPH. The highest concentration of tetrachloroethylene (24,000,000 parts per billion (ppb)) was detected in soil samples collected from 25 feet bgs. Groundwater contamination levels remain above the drinking water supply standard (SWRCB, 2015d).

Upland Landfill
The Upland landfill is located off Campus Avenue between 14th and 15th street in Upland and has been under investigation by the RWQCB since 1982. The inactive landfill is located on the site of a former gravel quarry. The landfill is bisected by the West Cucamonga storm drain which is now lined with concrete where surface runoff empties into the drain. Ponding was evident for 6 to 8 years. VOCs, PCE, TCE and chlorides have been suspected of contaminating the groundwater that is used for multiple uses including drinking water and other domestic uses (SWRCB, 2015e).

Foss Brothers Dairy
The Foss Brothers Dairy is located at 6641 Riverside Drive in Chino. The Dairy consists of a retail commercial dairy market and parking areas. In March 2003, a 500-gallon underground gasoline storage tank was removed from the site. Soil sampling after tank removal identified a significant release of petroleum hydrocarbons from the tank system. The primary contaminate of concern is gasoline. Traces of these hydrocarbons affect the aquifer used for drinking water supply (SWRCB, 2015f).

Van Hofwegen Dairy
The Van Hofwegen Dairy is located fairly close to the Foss Brothers Dairy at 15913 S. Mountain Avenue in Chino. The RWQCB has been remediating the site since 2006. May of 1999 was when petroleum hydrocarbons were first detected in the soil and groundwater at the site. Primary contaminants of concern are gasoline, MTBE, TBA, and other fuel oxygenates that effect the aquifer used for the drinking water supply (SWRCB, 2015g).

South Archibald TCE Plume
The South Archibald TCE Plume is located south of the Ontario Airport between E. Riverside Drive and S. Archibald Avenue in Ontario. This plume of groundwater is contaminated by VOCs, Nitrates and TCE (SWRCB, 2015h).

Sensitive Receptors
Preschools, schools, daycare centers, nursing homes, and hospitals are considered sensitive receptors for hazardous material issues because children and the elderly are more susceptible than adults to the effects of many hazardous materials. There are numerous sensitive receptors throughout the Chino Basin and there is the potential for many sensitive receptors to be within 0.25 miles of existing and proposed future OBMPU facilities.

Wildland Fire Hazards
California Department of Forestry and Fire Protection (CAL FIRE) maps the Fire Hazard Severity Zones (FHSZ) for the cities within the Chino Basin. The FHSZ are based on an evaluation of fuels, topography, dwelling density, weather, infrastructure, building materials, brush clearance, and fire history (CAL FIRE, 2007). The Chino Basin contains moderate, high, and very high fire severity zones shown on **Figure IX-1 through IX-4** shows the fire hazard severity zones (FHSZ)within the project area (CAL FIRE, 2008).

Airports
There are three public airports within the Chino Basin, including the Chino Airport, the Ontario International Airport, and the Cable Airport, listed in **Table IX-2** below.

Table IX-2
AIRPORTS WITHIN THE CHINO BASIN

Airport	Address
Chino Airport (CNO)	7000 Merrill Avenue Chino, CA 91710
LA/Ontario International Airport (ONT)	2500 East Airport Drive Ontario, CA 91761
Cable Airport (CCB)	1749 West 13th Street Upland, CA 91786
SOURCE: Toll Free Airline, 2016	

Schools
Based on a review of information on there are nine school districts that are within the Chino Basin, there are approximately 156 existing schools within the project area.

IX.2 Regulatory Framework

Hazards and hazardous materials are subject to numerous federal, state, and local laws and regulations intended to protect health, safety, and the environment. The U.S. Environmental Protection Agency (USEPA), DTSC, RWQCB, and County of San Bernardino are the primary agencies enforcing these regulations. Local regulatory agencies enforce many federal and State regulations through the Certified Unified Program Agency (CUPA) program. The San Bernardino County Fire Department is the lead agency for the investigation and cleanup of leaking underground storage tank sites. The RWQCB is the lead agency for other groundwater cases. The DTSC can be the lead agency for cases with no groundwater issues and is the lead agency for investigation and remediation of the hazardous sites discussed above.

Federal
Federal agencies with responsibility for hazardous materials management include the USEPA, Department of Labor (Federal Occupational Health and Safety Administration [OSHA]), and Department of Transportation (US DOT). Major federal laws and issue areas include the following statutes and regulations:

Resources Conservation and Recovery Act (RCRA) 42 USC 6901 et seq.
RCRA is the principal law governing the management and disposal of hazardous materials. RCRA is considered a “cradle to grave” statute for hazardous wastes in that it addresses all aspects of hazardous materials from creation to disposal. RCRA applies to this program because RCRA is used to define hazardous materials; offsite disposal facilities and the wastes each may accept are regulated under RCRA.

Emergency Planning and Community Right-to-Know Act (EPCRA from SARA Title III)
EPCRA improved community access to information regarding chemical hazards and facilitated the development of business chemical inventories and emergency response plans. EPCRA also established reporting obligations for facilities that store or manage specified chemicals. EPCRA applies to this program because contractors use hazardous materials (e.g., fuels, paints and thinners, solvents, etc.) would be required to prepare and implement written emergency response plans to properly manage hazardous materials and respond to accidental spills.

US DOT Hazardous Materials Transportation Act of 1975 (49 USC 5101)
US DOT, in conjunction with the USEPA, is responsible for enforcement and implementation of federal laws and regulations pertaining to safe storage and transportation of hazardous materials. The Code of Federal Regulations (CFR) 49, 171–180, regulates the transportation of hazardous materials, types of material defined as hazardous, and the marking of vehicles transporting hazardous materials. This Act applies to this program because contractors will be required to comply with its storage and transportation requirements that would reduce the possibility of spills.

The Federal Motor Carrier Safety Administration (49 CFR Part 383-397)
The Federal Motor Carrier Safety Administration, a part of the US DOT, issues regulations concerning highway transportation of hazardous materials, the hazardous materials endorsement for a commercial

driver's license, highway hazardous material safety permits, and financial responsibility requirements for motor carriers of hazardous materials. This Act applies to this program because contractors would be required to comply with its storage and transportation requirements that would reduce the possibility of spills.

Occupational Safety and Health Administration (OSHA; 29 USC 15)
OSHA is the federal agency responsible for ensuring worker safety. These regulations provide standards for safe workplaces and work practices, including those relating to hazardous materials handling. OSHA applies to this program because contractors would be required to comply with its hazardous materials management and handling requirements that would reduce the possibility of spills.

Hazardous Materials Transport Act (49 USC 5101)
The U.S. Department of Transportation, in conjunction with the USEPA, is responsible for enforcement and implementation of federal laws and regulations pertaining to transportation of hazardous materials. The Hazardous Materials Transportation Act of 1974 directs the U.S. Department of Transportation to establish criteria and regulations regarding the safe storage and transportation of hazardous materials. Code of Federal Regulations (CFR) 49, 171–180, regulates the transportation of hazardous materials, types of material defined as hazardous, and the marking of vehicles transporting hazardous materials. This Act applies to this program because contractors would be required to comply with its storage and transportation requirements that would reduce the possibility of spills.

Federal Regulation 49 Code of Federal Regulation Part 77
The Federal Aviation Administration (FAA) is the federal agency that identifies potential impacts related to air traffic and related safety hazards. The Federal Regulation 49 Code of Federal Regulation (CFR) Part 77 establishes standards and notification requirements for objects affecting navigable airspace. This notification serves as the basis for:

- Evaluating the effect of the proposed construction or alteration on operating procedures,
- Determining the potential hazardous effect of the proposed construction on air navigation,
- Identifying mitigating measures to enhance safe air navigation, and
- Charting of new objects.

FAA FAR Part 77 includes the establishment of imaginary surfaces (airspace that provides clearance of obstacles for runway operation) that allows the FAA to identify potential aeronautical hazards in advance, thus preventing or minimizing adverse impacts to the safe and efficient use of navigable airspace. The regulations identify three-dimensional imaginary surfaces through which no object should penetrate. Section 77.17 (Obstruction Standards) also states that an object would be an obstruction to air navigation if it is higher than 200 feet above ground level. Exceedance of 200 feet above ground level or the 100:1 imaginary surface requires notification to FAA (per FAR Part 77). An object that would be constructed or altered within the height restriction or imaginary surface area of the airport is not necessarily incompatible (ALUP, 2008), but would be subject to FAA notification and an FAA aeronautical study to determine whether the proposed structures would constitute a hazard to air navigation. This regulation would apply to the proposed program because the program area is within the air navigation area for the three airports listed in Table 3.7-2.

<u>State</u>
The primary state agencies with jurisdiction over hazardous chemical materials management are the DTSC and the Santa Ana RWQCB. Other state agencies involved in hazardous materials management are the Department of Industrial Relations (State OSHA implementation), State Office of Emergency Services (OES)—California Accidental Release Prevention (CalARP) implementation, California Air Resources Board (CARB), California Department of Transportation (Caltrans), State Office of Environmental Health Hazard Assessment (OEHHA—Proposition 65 implementation) and California Integrated Waste Management Board (CIWMB). Hazardous materials management laws in California include the following statutes and regulations promulgated thereunder:

Hazardous Waste Control Act (HWCA; California Health and Safety Code, Section 25100 et seq.)
The HWCA is the state equivalent of RCRA and regulates the generation, treatment, storage, and disposal of hazardous waste. This act implements the RCRA "cradle-to-grave" waste management system in California but is more stringent in its regulation of non-RCRA wastes, spent lubricating oil, small-quantity generators, transportation and permitting requirements, as well as in its penalties for violations.

California Accidental Release Prevention Program (CalARP)
The purpose of the CalARP is to prevent accidental releases of substances that can cause serious harm to the public and the environment, to minimize the damage if releases do occur, and to satisfy community right-to-know laws. This is accomplished by requiring businesses that handle more than a threshold quantity of a regulated substance listed in the regulations to develop a Risk Management Plan (RMP). An RMP is a detailed engineering analysis of the potential accident factors present at a business and the mitigation measures that can be implemented to reduce this accident potential. The RMP contains safety information, hazards review, operating procedures, training requirements, maintenance requirements, compliance audits, and incident investigation procedures (CalOES, 2016).

California Hazardous Materials Release Response Plans and Inventory Law of 1985 (Business Plan Act)
The Business Plan Act requires preparation of hazardous materials business plans and disclosure of hazardous materials inventories, including an inventory of hazardous materials handled, plans showing where hazardous materials are stored, an emergency response plan, and provisions for employee training in safety and emergency response procedures (California Health and Safety Code, Division 20, Chapter 6.95, Article 1). Statewide, DTSC has primary regulatory responsibility for management of hazardous materials, with delegation of authority to local jurisdictions that enter into agreements with the state. Local agencies are responsible for administering these regulations.

Several state agencies regulate the transportation and use of hazardous materials to minimize potential risks to public health and safety, including the California Environmental Protection Agency (CalEPA) and the California Emergency Management Agency. The California Highway Patrol and Caltrans enforce regulations specifically related to the transport of hazardous materials. Together, these agencies determine container types used and license hazardous waste haulers for hazardous waste transportation on public roadways.

The Business Plan Act applies to this program because contractors will be required to comply with its handling, storage, and transportation requirements that would reduce the possibility of spills, and to prepare an emergency response plan to respond to accidental spills.

Health and Safety Code, Section 2550 et seq.
This code and the related regulations in 19 California Code of Regulations (CCR) 2620, et seq., require local governments to regulate local business storage of hazardous materials in excess of certain quantities. The law also requires that entities storing hazardous materials be prepared to respond to releases. Those using and storing hazardous materials are required to submit a Hazardous Materials Business Plan (HMBP) to their local CUPA and to report releases to their CUPA and the State Office of Emergency Services. This code would apply to the program because the contractors would be required to prepare a HMBP that would provide procedures for the safe handling, storage, and transportation of hazardous materials.

California Division of Occupational Safety and Health (Cal/OSHA)
Cal/OSHA is responsible for developing and enforcing workplace safety standards and assuring worker safety in the handling and use of hazardous materials. Among other requirements, Cal/OSHA requires many entities to prepare injury and illness prevention plans and chemical hygiene plans, and provides specific regulations to limit exposure of construction workers to lead. OSHA applies to this program because contractors will be required to comply with its handling and use requirements that would increase worker safety and reduce the possibility of spills, and to prepare an emergency response plan to respond to accidental spills.

Health and Safety Code, Section 25270, Aboveground Petroleum Storage Act
Health and Safety Code Sections 25270 to 25270.13 applies to facilities that operate a petroleum aboveground storage tank with a capacity greater than 660 gallons or combined aboveground storage tanks capacity greater than 1,320 gallons or oil-filled equipment where there is a reasonable possibility that the tank(s) or equipment may discharge oil in "harmful quantities" into navigable waters or adjoining shore lands. If a facility falls under these criteria, it must prepare a Spill Prevention Control and Countermeasure (SPCC) Plan.

Government Code Section 65962.5, Cortese List
The provisions in Government Code Section 65962.5 are commonly referred to as the "Cortese List" (after the Legislator who authored and enacted the legislation). The list, or a site's presence on the list, has bearing on the local permitting process, as well on compliance with CEQA. The list is developed with input from the State Department of Health Services, State Water Resources Control Board, California Integrated Waste Management Board, and DTSC. At a minimum, at least annually, the DTSC Control shall submit to the Secretary for Environmental Protection a list of the following:

1. All hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the Health and Safety Code.
2. All land designated as hazardous waste property or border zone property pursuant to Article 11 (commencing with Section 25220) of Chapter 6.5 of Division 20 of the Health and Safety Code.
3. All information received by the DTSC pursuant to Section 25242 of the Health and Safety Code on hazardous waste disposals on public land.
4. All sites listed pursuant to Section 25356 of the Health and Safety Code
5. All sites included in the Abandoned Site Assessment Program.
6. All underground storage tanks for which an unauthorized release report is filed pursuant to Section 25295 of the Health and Safety Code.
7. All solid waste disposal facilities from which there is a migration of hazardous waste and for which a California regional water quality control board has notified the Department of Toxic Substances Control pursuant to subdivision (e) of Section 13273 of the Water Code.
8. All cease and desist orders issued after January 1, 1986, pursuant to Section 13301 of the Water Code, and all cleanup or abatement orders issued after January 1, 1986, pursuant to Section 13304 of the Water Code, that concern the discharge of wastes that are hazardous materials.
9. All solid waste disposal facilities from which there is a known migration of hazardous waste.

The Secretary for Environmental Protection shall consolidate the information submitted pursuant to this section and distribute it in a timely fashion to each city and county in which sites on the lists are located. The Secretary shall distribute the information to any other person upon request. The Secretary may charge a reasonable fee to persons requesting the information, other than cities, counties, or cities and counties, to cover the cost of developing, maintaining, and reproducing and distributing the information. The Cortese List applies to this program because there are sites on the Cortese List within the Chino Basin

Utility Notification Requirements
Title 8, Section1541 of the CCR requires excavators to determine the approximate locations of subsurface utility installations (e.g., sewer, telephone, fuel, electric, water lines, or any other subsurface installations that may reasonably be encountered during excavation work) prior to opening an excavation. The California Government Code (Section 4216 et seq.) requires owners and operators of underground utilities to become members of and participate in a regional notification center. According to Section 4216.1, operators of subsurface installations who are members or participate and share in the costs of a regional notification center are in compliance with this section of the code. Underground Services Alert of Southern California (known as DigAlert) receives planned excavation reports from public and private excavators and transmits those reports to all participating members of DigAlert that may have underground facilities at the location of excavation. Members will mark or stake their facilities, provide information, or give clearance to dig (DigAlert 2014). This requirement would apply to this program because any excavation would be required to identify underground utilities before excavation.

Local

Certified Unified Program Agency (CUPA)
In 1993, Senate Bill (SB) 1082 was passed by the State Legislature to streamline the permitting process for those businesses that use, store, or manufacture hazardous materials. The passage of SB 1082 provided for the designation of a CUPA that would be responsible for the permitting process and collection of fees. The CUPA would be responsible for implementing at the local level the Unified Program, which serves to consolidate, coordinate, and make consistent the administrative requirements, permits, inspections, and enforcement activities for the following environmental and emergency management programs:

- Hazardous Waste
- Hazardous Materials Business Plan
- California Accidental Release Prevention Program
- Underground Hazardous Materials Storage Tanks
- Aboveground Petroleum Storage Tanks / Spill Prevention Control & Countermeasure Plans
- Hazardous Waste Generator and On-Site Hazardous Waste Treatment (tiered permitting) Programs

In the County of San Bernardino, the Hazardous Materials Division of the San Bernardino County Fire Department is designated as the CUPA responsible for implementing the above-listed program elements. The laws and regulations that established these programs require that businesses that use or store certain quantities of hazardous materials and submit a Hazardous Materials Business Plan (HMBP) that describes the hazardous materials usage, storage, and disposal to the CUPA. The contractors constructing the specific project and IEUA as the operator of the facility would be required to prepare and implement an HMBP.

San Bernardino County Emergency Operations Plan
The Emergency Management Program of San Bernardino County is governed and coordinated by the San Bernardino County Fire Department, Office of Emergency Services. The National Response Framework (NRF), National Incident Management System (NIMS), the Standardized Emergency Management System (SEMS) and the State of California Emergency Operations Plan provide planning and policy guidance to counties and local entities. These documents support the foundation for the County's Emergency Operations Plan (EOP), an all-hazard plan describing how the County will organize and respond to incidents. It is based on and compatible with the laws, regulations, plans, and policies listed above. The EOP describes how various agencies and organizations in the County will coordinate resources and activities with other Federal, State, County, local, and private-sector partners (County Fire Department Office of Emergency Services, 2013).

Multi-Jurisdictional Hazard Mitigation Plan (HMP)
The MJHMP is reviewed, monitored, and updated to reflect changing conditions and new information every five (5) years. The updated San Bernardino County Unincorporated Area MJHMP was approved by FEMA. The MJHMP presents updated information regarding hazards being faced by the County, the San Bernardino County Fire Protection District, the San Bernardino County Flood Control District, Big Bear Valley Recreation and Parks District, Bloomington Recreation and Parks District (Districts), and those Board-governed Special Districts administered by the San Bernardino County Special Districts Department. The Plan also presents mitigation measures to help reduce consequences from hazards, and outreach/education efforts within the unincorporated area of the County since 2005 (San Bernardino County, 2011).

San Bernardino County Fire Department
The Chino Basin receives fire and emergency response services from the San Bernardino County Fire Department (SBCFD). The SBCFD is responsible, on both the city and county level, for enforcing the State regulations governing hazardous waste generators, hazardous waste storage, and underground storage tanks, including inspections and enforcement. The SBCFD also regulates the use, storage, and disposal of

hazardous materials in San Bernardino County by issuing permits, monitoring regulatory compliance, investigating complaints, and other enforcement activities.
In addition to providing fire protection and emergency services, the SBCFD regulates the use and storage of hazardous materials for the County and provides emergency response in the event of accidental release of hazardous materials.

The SBCFD also administers the local Fire Code which incorporates articles of the Uniform Fire Code (UFC). The UFC is a model code, setting construction standards for buildings and associated fixtures, in order to prevent or mitigate hazards resulting from fire or explosion. The SBCFD reviews technical aspects of hazardous waste site cleanups, and oversees remediation of certain contaminated sites resulting from leaking underground storage tanks. The SBCFD is also responsible for providing technical assistance to public and private entities which seek to minimize the generation of hazardous waste.

Hazardous Materials Fire Code Requirements
As the CUPA, the SBCFD enforces the hazardous materials-related standards of the California Fire Code, including requirements for signage of hazardous materials storage areas, storage of flammable materials, secondary containment for storage containers, and separation of incompatible chemicals.

IX.3 Impact Analysis

Significance Criteria
The criteria used to determine the significance of impacts related to hazards and hazardous materials are based on Appendix G of the *CEQA Guidelines*. The proposed program would result in a significant impact with respect to hazards or hazardous materials if the program would:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.
- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment.
- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area.
- For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area.
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.
- Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

A discussion of the impacts and mitigation measures for the proposed project are presented below.

Methodology
This analysis focuses on the potential to encounter hazardous substances in soil and groundwater during construction and is based on regulatory database searches. The analysis also addresses the potential for the OBMPU projects to release hazardous materials during construction and operation, interfere with an adopted emergency response plan or emergency evacuation plan, and create fire hazards. Each potential impact is assessed in terms of the applicable regulatory requirements, and mitigation measures are identified as appropriate.

a. *Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?*

Project Category 1: Well Development and Monitoring Devices (PEs 1-9)
This project category includes development of ASR, injection, pumping, groundwater level, and water quality monitoring wells; associated well housing and monitoring devices such as flow meters and extensometers; and their operation. These wells would be installed throughout the Chino Basin, but with an emphasis on new well facilities north of State Highway 60 (SH 60).

In most instances these facilities do not involve the routine transport, use, or disposal of hazardous materials. However, in certain instances hazardous materials are used routinely in support of drilling wells, groundwater production operations and related treatment operations, and thus, some activities in support of Project Category 1 may generate routine transport of hazardous materials. Construction activities would be required for the installation of proposed improvement upgrades at the existing treatment plant facilities. Construction activities required for implementation of the facilities would potentially involve drilling, trenching, excavation, grading, and other ground-disturbing activities. The anticipated construction activities described above would temporarily require the transport, use, and disposal of hazardous materials including gasoline, diesel fuel, hydraulic fluids, paint, and other similarly related materials. Operational activities could require the installation of treatment facilities that use chemicals to ensure that recovered water from ASR wells

Although all stakeholders are required to manage both use of and disposal of hazardous or toxic materials in accordance with existing laws and regulations, the OBMP PEIR included five mitigation measures and the implementation of these measures can ensure that the use and generation of hazardous substances in support of Category 1 projects does not pose a significant hazard to workers, adjacent land uses and the environment. These mitigation measures (4.10-1 through and 4.10-5) will be applied to these future OBMPU projects. These measures have been re-numbered to be consistent with the topical numbering contained in this Initial Study.

Project Category 2: Conveyance Facilities and Ancillary Facilities (PEs 2, 4-9)
This category includes the construction of an estimated 550,000 LF of new pipelines, booster pump stations, reservoirs, and supporting equipment. The proposed conveyance facilities and ancillary facilities would be implemented throughout the entire Chino Basin. It is assumed that most pipelines will be installed within existing, disturbed public rights-of-way (ROW) with support facilities in adjacent developed areas, including reservoirs. Installation of these facilities can require delivery of hazardous materials (such as petroleum products) to support their installation. Long term operation of such facilities can require small quantities of hazardous materials, but typically only minimal quantities to keep equipment operating safely and efficiently.

Impacts would be the same as Project Category 1.

Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands (PEs 2, 4-5,8-9)
This category includes the construction of up to 310 acres of storage basins, including new basins and modifications/improvements to existing basins. It includes the use of up to 200 acres of agricultural land to support flood MAR facilities, new MS-4-compliance facilities and expansion of the maximum storage space (safe storage capacity) to be used in the Chino Basin from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af between this range of storage. The specific locations of the storage basins are described in the Project Description above; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

Installation of these facilities can require delivery of hazardous materials (such as petroleum products) to support their installation. Long term operation of such facilities can require small quantities of hazardous materials, but typically only minimal quantities to keep equipment operating safely and efficiently. The expansion of water storage in the Chino Basin has a potential to adversely impact known contamination plumes and unknown vadose zone contamination. These issues are addressed in the Hydrology & Water Quality Section, Section X in relation to increase groundwater storage.

Also, based on experience with existing recharge basins, all new surface water bodies associated with new storage basins and recharge facilities will require management of insects, primarily midges. This can be accomplished with a mix of insect control activities, but most often includes some use of pesticides. The use of pesticides, which are typically hazardous materials (poisons), is controlled through cooperation with those County agencies assigned the responsibility for controlling vectors, such as mosquitos. Mitigation is provided below to address management of pesticide use to minimize hazards for groundwater recharge activities and the environment surrounding the recharge basins and future surface storage facilities.

Other than the use of pesticides to control vectors, impacts would be the same as Project Categories 1 and 2.

Project Category 4: Desalters and Water Treatment Facilities (PEs 2, 4-9)
The projects proposed under this category include: upgrades at IEUA's existing Water Recycling Plants (WRPs, discussed in detail in IEUA's 2017 FMP PEIR); a new advanced water treatment plant; improvements to the WFA Agua de Lejos Treatment Plant; upgrades to the Chino Desalters, new groundwater treatment facilities at or near existing well sites and at regionally located sites; and improvements to existing groundwater treatment facilities.

Installation of these facilities can require delivery of hazardous materials (such as petroleum products) to support their installation. Long-term operation of such facilities as WRPs or advanced water treatment plants can require modest quantities of hazardous materials, such as chemicals like chlorine (commonly in the form of sodium hypochlorite) to treat recycled water or potable water sources prior to distribution. The mitigation measures identified for Project Categories 1, 2, and 3 also apply to Category 4 projects.

Combined Project Categories

Level of Significance Before Mitigation: Potentially Significant Impact

Mitigation Measures:

HAZ-1: ***For OBMPU facilities that handle hazardous materials or generate hazardous waste, the Business Plan prepared and submitted to the county or local city shall incorporate best management practices designed to minimize the potential for accidental release of such chemicals. The facility managers shall implement these measures to reduce the potential for accidental releases of hazardous materials or wastes***

HAZ-2: ***The business plan shall assess the potential accidental release scenarios and identify the equipment and response capabilities required to provide immediate containment, control and collection of any released material. Adequate funding shall be provided to acquire the necessary equipment, train personnel in responses and to obtain sufficient resources to control and prevent the spread of any accidentally released hazardous or toxic materials.***

HAZ-3: ***For the storage of any acutely hazardous material at an OBMPU facility, such as chlorine gas, modeling of pathways of release and potential exposure of the public to any released material shall be completed and specific measures, such as secondary containment, shall be implemented to ensure that sensitive receptors will not be exposed to significant health threats based on the toxic substance involved.***

HAZ-4: ***All hazardous contaminated material shall be delivered to a licensed treatment, disposal or recycling facility that has the appropriate systems to manage the contaminated material without significant impact on the environment***

HAZ-5: ***Before determining that an area contaminated as a result of an accidental release is fully remediated, specific thresholds of acceptable clean-up shall be established and sufficient samples shall be taken within the contaminated area to verify that these clean-up thresholds have been met.***

HAZ-6: ***Vector management plans shall be prepared and use of pesticides shall be reviewed and coordinated with the West Valley Mosquito and Vector Control District for approval prior to implementing vector control at any of the new or expanded storage basins. All pesticides shall be applied in accordance with State and label requirements to minimize potential for residual concentrations that may be considered adverse to public health and water quality.***

Level of Significance After Mitigation: Less than Significant

Cumulative Impact Analysis

The Chino Basin project area is largely urbanized with residential, commercial and industrial uses in most areas except southern Chino and Ontario and Prado Basin. As the project area continues to develop, the addition of more development could create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. However, all cumulative development would be subject to federal, State, and local regulations related to the routine transportation, use, storage, and disposal of hazardous materials. Since the proposed OBMPU projects would result in less than significant impacts related to the routine handling, use or disposal of hazardous materials, the projects' contributions to such impacts would be potentially cumulatively considerable and therefore, would result in a significant cumulative impact.

*Cumulative Measures: Mitigation measures **HAZ-1** through **HAZ-6** are required to minimize cumulative impacts.*

Level of Significance After Mitigation: Less than Significant

b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Project Category 1: Well Development and Monitoring Devices (PEs 1-9)

This project category includes development of ASR, injection, pumping, groundwater level, and water quality monitoring wells; associated well housing and monitoring devices such as flow meters and extensometers; and their operation. These wells would be installed throughout the Chino Basin, but with an emphasis on new ASR well facilities north of State Highway 60 (SH 60).

Construction activities associated with implementation of the proposed Category 1 facilities could create hazards to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials used in construction activities and equipment. The construction activities would involve the use of adhesives, solvents, paints, thinners, petroleum products and other chemicals. Cal/OSHA regulations provide for the proper labeling, storage, and handling of hazardous materials to reduce the potential harmful health effects that could result from worker exposure to hazardous materials. If not properly handled; however, accidental release of these substances could expose construction workers, degrade soils, or become entrained in stormwater runoff, resulting in adverse effects on the public or the environment. Agencies implementing Category 1 projects are required to comply with all relevant and applicable federal, state and local laws and regulations that pertain to the accidental release of hazardous materials during construction of proposed facilities such as Health and Safety Code, Section 2550 et seq. Compliance with all applicable federal, state and local regulations can reduce potential impacts to the public or the environment regarding accidental release of hazardous materials to less than significant impact, but a contingency mitigation measure is provided to ensure accidental releases and any related contamination do not significantly affect the environment at facility locations.

Where structures may need to be demolished such structures would need appropriate abatement of identified asbestos prior to demolition. Federal and state regulations govern the demolition of structures where materials containing lead and asbestos are present. ACMs are regulated both as a hazardous air pollutant under the Clean Air Act and as a potential worker safety hazard under the authority of Cal OSHA. These requirements include SCAQMD Rules and Regulations pertaining to asbestos abatement (including Rule 1403); Construction Safety Orders 1529 (pertaining to asbestos) and 1532.1 (pertaining to lead) from CCR Title 8; CFR Title 40, Part 61, Subpart M (pertaining to asbestos); and lead exposure guidelines provided by the U.S. Department of Housing and Urban Development (HUD). Asbestos and lead abatement must be performed and monitored by contractors with appropriate certifications from the California Department of Health Services.

In addition, Cal/OSHA has regulations concerning the use of hazardous materials, including requirements for safety training, availability of safety equipment, hazardous materials exposure warnings, and emergency action and fire prevention plan preparation. Cal/OSHA enforces the hazard communication program regulations, which include provisions for identifying and labeling hazardous materials, describing the hazards of chemicals, and documenting employee-training programs. All demolition that could result in the release of lead and/or asbestos would be conducted according to Cal/OSHA standards. Adherence to existing regulations and the mitigation measure provided below would ensure that potential impacts related to ACMs and LMPs would be less than significant.

The use of hazardous materials and substances during construction would be subject to the federal, state, and local health and safety requirements for the handling, storage, transportation, and disposal of hazardous materials, summarized in the Regulatory Framework. With compliance with these regulations, hazardous material impacts related to construction activities would be less than significant.

Operation
Operation of the proposed facilities could include the storage and use of chemicals. Any storage tanks would be designed in accordance with the applicable hazardous materials storage regulations for long-term use summarized in the Regulatory Framework. The delivery and disposal of chemicals to and from water and wastewater treatment facility sites would occur in full accordance with all applicable federal, state, and local regulations.

As noted in the Regulatory Framework, an HMBP must be prepared and implemented for the proposed facility upgrades as required by the County of San Bernardino CUPA. The HMBP would minimize hazards to human health and the environment from fires, explosions, or an accidental release of hazardous materials into air, soil, surface water, or groundwater. Compliance with all applicable federal, state and local regulations regarding the handling, storage, transportation, and disposal of hazardous materials, and preparation and implementation of the HMBP would reduce potential impacts to the public, employees, or the environment related to the transport, use, or disposal of hazardous materials to a less than significant impact.

Project Category 2: Conveyance Facilities and Ancillary Facilities (PEs 2, 4-9)
This category includes the construction of an estimated 550,000 LF of new pipelines, booster pump stations, reservoirs, and supporting equipment. The proposed conveyance facilities and ancillary facilities would be implemented throughout the entire Chino Basin. It is assumed that most pipelines will be installed within existing, disturbed public rights-of-way (ROW) with support facilities in adjacent developed areas, including reservoirs. Installation of these facilities can require delivery of hazardous materials (such as petroleum products) to support their installation. Long term operation of such facilities can require small quantities of hazardous materials, but typically only minimal quantities to keep equipment operating safely and efficiently.

Construction
Construction impacts would be the same as Project Category 1. Compliance with all applicable federal, state and local regulations regarding the handling, storage, transportation, and disposal of hazardous materials, and preparation and implementation of the mitigation measure HAZ-7 would reduce potential

impacts to the public, employees, or the environment related to the transport, use, or disposal of hazardous materials to a less than significant impact.

Operation
Operation of the proposed conveyance and ancillary facilities would consist of facilities designed to store, transport and discharge water. Hazardous materials would not be associated with the regular operation of these facilities. Therefore, operational impacts would be less than significant.

Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands (PEs 2, 4-5, 8/9)
This category includes the construction of up to 310 acres of storage basins, including new basins and modifications/improvements to existing basins. It includes the use of up to 200 acres of agricultural land to support flood MAR facilities, new MS-4-compliance facilities and expansion of the maximum storage space (safe storage capacity) to be used in the Chino Basin from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af between this range of storage. The specific locations of the storage basins are described in the Project Description above; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

Impacts would generally be the same as Project Categories 1 and 2. The primary differences are the major construction effort for the new basins (larger than most facilities required to support the OBMPU), and the flood MAR facilities and MS4 facilities (where the Watermaster's role will be secondary to that of the cities and counties due to these agencies holding the MS4 permits from the Regional Board) may be located in proximity to schools. The cities and counties must be approached by the Watermaster or stakeholders to identify any specific role they can play in enhancing onsite surface runoff management, particularly onsite recharge at a MAR facility or MS4 facility(ies). At this time, it is not possible to identify specific improvements that may be feasible to enhance this role.

Project Category 4: Desalters and Water Treatment Facilities (PEs 2, 4-9)
The projects proposed under this category include: upgrades at IEUA's existing Water Recycling Plants (WRPs, discussed in detail in IEUA's 2017 FMP PEIR); a new advanced water treatment plant; improvements to the WFA Agua de Lejos Treatment Plant; upgrades to the Chino Desalters, new groundwater treatment facilities at or near existing well sites and at regionally located sites; and improvements to existing groundwater treatment facilities.

All of the above facilities (except the new advanced water treatment plant) are proposed to be implemented at existing facilities or disturbed locations. Most of these locations are not near existing schools, but where such proximity may occur, the impacts will be comparable to Categories 1 and 2.

Operations
Operation of the proposed conveyance and ancillary facilities would consist of facilities designed to store, transport and discharge water. Hazardous materials would not be associated with the regular operation of these facilities. Therefore, operational impacts would be less than significant.

Combined Project Categories
Accidental release of hazardous materials could occur during routine transport, disposal, or use, and could potentially injure construction workers, contaminate soil, and/or affect nearby groundwater or surface water bodies. Future project proponents would be required to comply with all relevant and applicable federal, State and local laws and regulations that pertain to the transport, storage, and use of hazardous materials during construction and operation of all proposed facilities. Compliance with these laws and implementation of the following mitigation measure would minimize the potential hazard to the public or environment due to accidental release. Potential accidental hazard impacts would be less than significant.

Mitigation Measures:

HAZ-7: ***All accidental spills or discharge of hazardous material during construction activities shall be reported to the County Fire Department and shall be remediated in compliance***

with applicable state and local regulations regarding cleanup and disposal of the contaminant released. The contaminated waste will be collected and disposed of at an appropriately licensed disposal or treatment facility. This measure shall be incorporated into the SWPPP prepared or each future facility developed under the OBMPU PEIR. Prior to accepting the site as remediated, the area contaminated shall be tested to verify that any residual concentrations meet the standard for future residential or public use of the site.

Level of Significance After Mitigation: Less Than Significant

c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

Project Category 1: Well Development and Monitoring Devices (PEs 1-9)
This project category includes development of ASR, injection, pumping, groundwater level, and water quality monitoring wells; associated well housing and monitoring devices such as flow meters and extensometers; and their operation. These wells would be installed throughout the Chino Basin, but with an emphasis on new ASR well facilities north of State Highway 60 (SH 60).

Due to the potentially extensive nature of facilities associated with implementing the proposed wells and ancillary equipment, it is possible that construction of proposed facilities would occur within one-quarter mile of a school. Construction activities would use limited quantities of hazardous materials, such as gasoline and diesel fuel. As a general rule, well and ancillary facility construction activities do not require any acutely hazardous materials. Additionally, a project proponent is required to comply with all relevant and applicable federal, State and local laws and regulations that pertain to the release of hazardous materials during construction of proposed facilities. Compliance with all applicable federal, state and local regulations and mitigation measure **HAZ-7** would reduce potential impacts to the public or the environment regarding hazardous waste discharges or emissions within one-quarter mile of a school during construction. Impacts would be less than significant.

Operation of the proposed projects would consist of facilities designed to produce, store and move water into and out of the groundwater aquifer. With two exceptions, hazardous materials would not be associated with the regular operation of Category 1 facilities, and no hazardous materials would be emitted or handled within one-quarter mile of a school. One exception is if during extractions from the Chino Basin, owners of wells choose to treat the groundwater with chlorine for delivery of the groundwater as potable water. This is most commonly carried out by dosing the extracted water with sodium hypochlorite, a diluted hazardous material. This material would not enter the atmosphere and in the quantities and form used, would not pose a significant hazard for students that may be attending a nearby school. The other material is petroleum product used to support pump stations. In both cases, the established handling protocols would cause no significant operational impacts for category 1 facilities.

Project Category 2: Conveyance Facilities and Ancillary Facilities (PEs 2, 4-9)
This category includes the construction of an estimated 550,000 LF of new pipelines, booster pump stations, reservoirs, and supporting equipment. The proposed conveyance facilities and ancillary facilities would be implemented throughout the entire Chino Basin. It is assumed that most pipelines will be installed within existing, disturbed public rights-of-way (ROW) with support facilities in adjacent developed areas, including reservoirs.

Due to the potentially extensive nature of facilities associated with implementing the proposed pipelines and ancillary facilities, it is possible that construction of proposed facilities would occur within one-quarter mile of a school. Construction activities would use limited quantities of hazardous materials during construction of pipelines and ancillary facilities, such as gasoline and diesel fuel. Additionally, future project proponents are required to comply with all relevant and applicable federal, State and local laws and regulations that pertain to the release of hazardous materials during construction of proposed facilities. Compliance with all applicable federal, state and local regulations and mitigation measure **HAZ-7** would reduce potential impacts to the public or the environment regarding hazardous waste emissions within one-quarter mile of a school. Impacts would be less than significant.

Operation of the proposed Category 2 projects would consist of facilities designed to store, convey, and discharge water. Therefore, hazardous materials would not be associated with the regular operation of the facilities, and no hazardous materials would be emitted or handled within one-quarter mile of a school. The one exception to this could be pump stations with backup generators that would require fuels for operation. Future project proponents are required to comply with all relevant and applicable federal, State and local laws and regulations that pertain to the release of hazardous materials during operation of proposed facilities. Compliance with all applicable federal, state and local regulations and mitigation measure **HAZ-7** would reduce potential impacts to the public or the environment regarding hazardous waste emissions within one-quarter mile of a school during operations. Impacts would be less than significant.

Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands (PEs 2, 4-5, 8/9)
This category includes the construction of up to 310 acres of storage basins, including new basins and modifications/improvements to existing basins. It includes the use of up to 200 acres of agricultural land to support flood MAR facilities, new MS-4-compliance facilities and expansion of the maximum storage space (safe storage capacity) to be used in the Chino Basin from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af between this range of storage. The specific locations of the storage basins are described in the Project Description above; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

Construction
The construction of storage basins will occur in areas not located within ¼ mile of any existing schools. Therefore, no adverse impacts under this issue category will occur. Some of the existing recharge facilities, and future recharge facilities (ASR wells), may occur within ¼ mile of a school. The construction activity impacts at such facilities will be comparable to the impacts under Category 1 and 2 facilities. For the flood MAR and MS4 projects the specific location of such facilities is not yet defined, so such facilities could be located near a school. However, minimal construction activities would be expected for such facilities and the impacts would be comparable to the impacts under Category 1 and 2 facilities. Finally, the use of groundwater storage capacity up to 1,000,000 af has no potential to directly create any school hazards, other than some of the support facilities, such as ASR wells addressed under Category 1 facilities.

Operations
Operation of the proposed storage basins, recharge facilities and storage band facilities would consist of facilities designed to store, recharge and use storage space in the Chino Basin aquifer. Hazardous materials would not be associated with the regular operation of these facilities. Therefore, operational impacts would be less than significant.

Project Category 4: Desalters and Water Treatment Facilities (PEs 2, 4-9)
The projects proposed under this category include: upgrades at IEUA's existing Water Recycling Plants (WRPs, discussed in detail in IEUA's 2017 FMP PEIR); a new advanced water treatment plant; improvements to the WFA Agua de Lejos Treatment Plant; upgrades to the Chino Desalters, new groundwater treatment facilities at or near existing well sites and at regionally located sites; and improvements to existing groundwater treatment facilities.

Construction
All of the above facilities (except the new advanced water treatment plant) are proposed to be implemented at existing facilities or disturbed locations. Most of these locations are not near existing schools, but because of construction activities at these locations hazardous materials are likely to be used. Where such proximity to schools may occur, the impacts will be comparable to Categories 1 and 2.

Operations
Most of these locations are not near existing schools, but because of treatment processes at these locations hazardous materials will be used. Where such proximity may occur, the impacts will be comparable to Categories 1 and 2.

Combined Project Categories
It is possible for many of the above facilities to be constructed within one quarter-mile of a school. Because construction activities would use limited quantities of hazardous materials and are required to comply with all relevant and applicable federal, State and local laws and regulations that pertain to the release of hazardous materials during construction, impacts would be less than significant. Furthermore, hazardous materials would be associated with the regular operation of the facilities within one-quarter mile of a school. Because operation activities would use limited quantities of hazardous materials and are required to comply with all relevant and applicable federal, State and local laws and regulations that pertain to the release of hazardous materials during use, impacts would be less than significant. Therefore, there would be no significant operational impacts.

Level of Significance Before Mitigation: Potentially Significant.

Mitigation Measures: Mitigation measure **HAZ-7** is required to minimize project impacts.

Level of Significance After Mitigation: Less Than Significant

Cumulative Impact Analysis
*Cumulative Measures: Mitigation measure **HAZ-7** is required to minimize project impacts. Cumulative projects should implement comparable mitigation measures, but IEUA and Watermaster can only impose and monitor mitigation measures for OBMPU projects.*

Level of Significance After Mitigation: Less Than Significant

d. *Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?*

Project Category 1: Well Development and Monitoring Devices (PEs 1-9)
This project category includes development of ASR, injection, pumping, groundwater level, and water quality monitoring wells; associated well housing and monitoring devices such as flow meters and extensometers; and their operation. These wells would be installed throughout the Chino Basin, but with an emphasis on new ASR well facilities north of State Highway 60 (SH 60).

The hazardous sites analysis undertaken for this program, including records search on the SWRCB GeoTracker and the DTSC EnviroStor databases, revealed multiple listed and active sites within the Chino Basin, however there are no hazardous waste sites identified within or adjacent to the IEUA treatment facilities' sites. Within the Chino Basin the contaminated locations can be divided into two categories. First, there are known surface contaminated sites of which there are more than 100 locations and which are generally limited in area. Second, there are larger legacy contamination sites that have cause extensive groundwater contamination plumes, such as he GE Flatiron plume. These larger known contaminated areas are not being evaluated in this section of the Initial Study. They will be evaluated in the Program Environmental Impact Report (PEIR) under the Hydrology and Water Quality section because of the potential for future OBMPU activities to cause significant adverse impacts to these contaminated areas.

Regarding the smaller, discrete surface contamination sites, the lack of specific locations for future wells, and ancillary facilities makes it infeasible at this time to forecast potential conflicts or impacts between Category 1 uses and possible adverse impacts associated with contaminated sites. Therefore, mitigation will be implemented to prevent future site-specific conflicts or impacts between Category 1 facilities and such sites. Two mitigation measures (**HAZ-8** and **HAZ-9**) will be implemented to ensure that Category 1 facilities are not located on contaminated sites. These measures can be readily implemented since the

Category 1 sites ae small (typically 0.5 acre or less) and with rare exceptions need not be located at a specific site.

Occasionally, a project that involves subsurface excavation or exploration may encounter an unknown contaminated site. Once encountered there are existing protocols to address such contamination in the regulations. However, the mitigation measure **HAZ-9** shall be implemented to ensure such contamination does not cause harm to employees or the surrounding environment.

With implementation of mitigation measures, potential conflicts with contaminated sites can be reduced to a less than significant impact level for future OBMPU facilities.

Project Category 2: Conveyance Facilities and Ancillary Facilities (PEs 2, 4-9)
This category includes the construction of an estimated 550,000 LF of new pipelines, booster pump stations, reservoirs, and supporting equipment. The proposed conveyance facilities and ancillary facilities would be implemented throughout the entire Chino Basin. It is assumed that most pipelines will be installed within existing, disturbed public rights-of-way (ROW) with support facilities in adjacent developed areas, including reservoirs.

The hazardous sites analysis undertaken for this project, including records search on the SWRCB GeoTracker and the DTSC EnviroStor databases, revealed multiple listed and active sites within the Chino Basin. The proposed projects would include construction of pipelines and ancillary facilities throughout the Chino Basin. During project construction, it is possible that contaminated soil and/or groundwater could be encountered during excavation, thereby posing a health threat to construction workers, the public, and the environment. In addition to implementing mitigation measures **HAZ-8** and **HAZ-9**, which address avoiding known contaminated sites and encounters with unknown contamination, notification of regulatory agencies and following their guidance can ensure OBMPU facilities will have a less than significant conflict with contaminated sites.

Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands (PEs 2, 4-5, 8/9)
This category includes the construction of up to 310 acres of storage basins, including new basins and modifications/improvements to existing basins. It includes the use of up to 200 acres of agricultural land to support flood MAR facilities, new MS-4-compliance facilities and expansion of the maximum storage space (safe storage capacity) to be used in the Chino Basin from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af between this range of storage. The specific locations of the storage basins are described in the Project Description above; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

Impacts would be the same as Project Categories 1 and 2. Therefore, construction and operation of storage basins, recharge facilities and the storage bands would not result in a significant hazard to the public or environment with implementation of measures **HAZ-8** and **HAZ-9**.

Project Category 4: Desalters and Water Treatment Facilities (PEs 2, 4-9)
The projects proposed under this category include: upgrades at IEUA's existing Water Recycling Plants (WRPs, discussed in detail in IEUA's 2017 FMP PEIR); a new advanced water treatment plant; improvements to the WFA Agua de Lejos Treatment Plant; upgrades to the Chino Desalters, new groundwater treatment facilities at or near existing well sites and at regionally located sites; and improvements to existing groundwater treatment facilities.

Aside from the proposed advanced wastewater treatment plant, the existing desalter sites, IEUA's WRPs, and the WFA Agua de Lejos Treatment Plant do not have any known contaminated locations within their boundaries. Therefore, modifications to these facilities in support of the OBMPU pose no potential for adverse impacts to employees or environment. This finding is generally valid for individual well sites where new water treatment facilities may be installed. With regard to the advanced water treatment facility, impacts would be the same as Project Categories 1 and 2. Therefore, construction and operation of this type of facility would not result in a significant hazard to the public or environment with implementation of measures **HAZ-8** and **HAZ-9**.

Combined Project Categories

During project construction, it is possible that contaminated soil and/or groundwater could be encountered during excavation, thereby posing a health threat to construction workers, the public, and the environment. Impacts would be potentially significant.

Level of Significance Before Mitigation: Potentially Significant

Mitigation Measures:

HAZ-8: ***Prior to final site selection for future OBMPU facilities, the implementing agency shall obtain a Phase I Environmental Site Assessment (ESA)for the selected site. If a site contains contamination the agency shall either avoid the site by selecting an alternative location or shall remove any contamination (remediate) at the site to a level of concentration that eliminates hazard to employees working at the site and that will not conflict with the installation and future operation of the facility. For sites located on agricultural land, this can include soil contaminated with unacceptable concentrations of pesticides or herbicides that shall be remediated through removal or blending to reduce concentrations below thresholds of significance established for the particular pesticide or herbicide.***

HAZ-9: ***Should an unknown contaminated site be encountered during construction of OBMPU facilities, all work in the immediate area shall cease; the type of contamination and its extent shall be determined; and the local CUPA or other regulatory agencies (such as the DTSC or Regional Board) shall be notified. Based on investigations of the contamination, the site may be closed and avoided or the contaminant(s) shall be remediated to a threshold acceptable to the CUPA or other regulatory agency threshold and any contaminated soil or other material shall be delivered to an authorized treatment or disposal site.***

Level of Significance After Mitigation: Less Than Significant

The implementation of Mitigation Measures **HAZ-8** and **HAZ-9**would require site-specific studies to identify known hazardous materials risks or the potential for risk related to hazardous materials. These studies would identify recommendations and cleanup measures to reduce risk to the public and the environment from development on hazardous materials sites. Implementation of Mitigation Measures **HAZ-8** and **HAZ-9** would reduce potential impacts to construction workers and the public from exposure to unknown affected soils. Therefore, impacts to the public or the environment related to hazardous materials sites would be less than significant.

Cumulative Impact Analysis

The Chino Basin is largely urbanized with residential, commercial and industrial development. As the region continues to develop, the addition of developments could be located on sites that are included on a list of hazardous materials sites and as a result, could create significant hazards to the public or the environment. Since the proposed OBMPU projects could be constructed on current hazardous material sites or unknown contaminated sites, impacts would be cumulatively considerable and therefore, would result in a potentially significant cumulative impact.

*Cumulative Measures: Mitigation measures **HAZ-8** and **HAZ-9** are required to minimize project impacts.*

Level of Significance After Mitigation: Less Than Significant

The implementation of Mitigation Measures **HAZ-8** and **HAZ-9** would ensure that the proposed facilities' contribution to cumulative development on hazardous materials sites would be reduced to less than cumulatively considerable by requiring site-specific studies to identify known hazardous materials risks or the potential for risks related to hazardous materials and affected soils and groundwater. These studies would include recommendations and cleanup measures to reduce risk to the public and the environment from development on contaminated sites. Implementation of Mitigation Measure **HAZ-8** and **HAZ-9** would reduce potential impacts to construction workers and the public from exposure to unknown affected soils.

e. *For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?*

The following three airports are located within the Chino Basin boundaries: Chino Airport, LA/Ontario International Airport, and Cable Airport in Upland. There are no private airstrips located within the Chino Basin.

Project Category 1: Well Development and Monitoring Devices (PEs 1-9)
This project category includes development of ASR, injection, pumping, groundwater level, and water quality monitoring wells; associated well housing and monitoring devices such as flow meters and extensometers; and their operation. These wells would be installed throughout the Chino Basin, but with an emphasis on new ASR well facilities north of State Highway 60 (SH 60).

Category 1 facilities are all low to the ground and any small structures would be uninhabited. Although no specific Category 1 facilities are specifically proposed within any airport safety zone or flight paths, the ASR wells, that are proposed to be located north of SH60 could be installed within the Ontario Airport's safety zone and flight path, excluding of course the runway protection zone. Other wells and ancillary facilities could be installed in similar areas at Chino and Cable Airports. Although OBMP Category 1 facilities would not pose any specific conflict with any public airport operations, mitigation is provided to ensure airport operators have an opportunity to participate in a decision to locate OBMP facilities within safety zone or flight paths. With implementation of mitigation measure **HAZ-10**, conflicts between OBMPU Category 1 facilities and airports can be reduced to a less than significant impact level.

Project Category 2: Conveyance Facilities and Ancillary Facilities (PEs 2, 4-9)
This category includes the construction of an estimated 550,000 LF of new pipelines, booster pump stations, reservoirs, and supporting equipment. The proposed conveyance facilities and ancillary facilities would be implemented throughout the entire Chino Basin. It is assumed that most pipelines will be installed within existing, disturbed public rights-of-way (ROW) with support facilities in adjacent developed areas, including reservoirs.

Pipelines are anticipated to be constructed below the ground surface within existing public rights-of-way, and no impacts would occur. Furthermore, all Project Category 2 facilities would be unmanned and therefore would not put any workers at risk. However, some ancillary facilities' locations (for reservoirs and booster pumps) have not yet been determined, and therefore, have the potential to be within an airport land use planning area. Ancillary facilities could result in a safety hazard to airport flight patterns, light, or navigation. Therefore, potential airport hazard impacts could be potentially significant. Implementation of Mitigation Measure HAZ-10 can ensure that Category 2 facilities will not conflict with airport operations.

Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands (PEs 2, 4-5, 8/9)
This category includes the construction of up to 310 acres of storage basins, including new basins and modifications/improvements to existing basins. It includes the use of up to 200 acres of agricultural land to support flood MAR facilities, new MS-4-compliance facilities and expansion of the maximum storage space (safe storage capacity) to be used in the Chino Basin from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af between this range of storage. The specific locations of the storage basins are described in the Project Description above; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

All three types of Category 3 facilities occur at ground level or below in the case of the storage bands below the ground surface. With the following exception these Category 3 facilities have no potential conflicts with airports or airport operations. The proposed storage basin at CIM could create a potential conflict due to attraction of water birds, particularly during the annual migration seasons (fall and spring). It should be noted that geese commonly utilize the existing CIM property for layover and feeding under present conditions. Based on the final site selected for the proposed CIM storage basin, the implementing agency shall implement Mitigation Measure HAZ-10. Regardless, if a bird strike conflict with flight paths from Chino Airport is identified, the implementing agency shall develop and implement a bird management program for the storage basin in conjunction with the Chino Airport managers. Implementation of HAZ-10 can reduce potential conflicts to a less than significant impact level.

Project Category 4: Desalters and Water Treatment Facilities (PEs 2, 4-9)
The projects proposed under this category include: upgrades at IEUA's existing Water Recycling Plants (WRPs, discussed in detail in IEUA's 2017 FMP PEIR); a new advanced water treatment plant; improvements to the WFA Agua de Lejos Treatment Plant; upgrades to the Chino Desalters, new groundwater treatment facilities at or near existing well sites and at regionally located sites; and improvements to existing groundwater treatment facilities.

Chino Airport
The City of Chino Airport is located at the northeast corner of Euclid Avenue and Kimball Avenue in the City of Chino. RP-2 is located within the Chino Airport Safety Zone II, or Referral Area "B". This area is made up of a departure zone but does not fall within the runway protection zone (RPZ), which would put construction workers or operational employees at most risk. Furthermore, RP-5 and the CCWRF are located in the Chino Airport Safety Zone III, or Referral Area "C"; the threat of aircraft accidents in this area is below that of the other referral areas. Some of the proposed OBMPU facilities would be located within the Chino Airport land use planning area; however, all IEUA existing facilities are located in zones that do not substantially expose short-term construction workers or long-term employees to risks. Potential conflicts with Chino Airport are considered to be less than significant.

LA/Ontario International Airport
The City of Ontario International Airport is located approximately 1.7 miles north of RP-1 and not within any airport safety zones or flight paths. Improvements at RP-1 would not result in any safety hazards for people residing or working in the project area. Therefore, impacts would be less than significant.

Cable Airport
There are no Project Category 4 projects proposed near the Cable Airport. The existing treatment facilities and associated projects are located within the City of Chino, Ontario, and Rancho Cucamonga. The closest IEUA treatment facility is RP-1 located approximately 7.5 miles southeast in Ontario. No proposed projects within existing treatment facilities would be located within two miles of the Cable Airport, therefore there would be no impacts associated with safety hazards for people working at the treatment facilities.

The only facility with some flexibility of location under Category 4 is the new advanced water treatment facility. This facility could be located adjacent to an existing IEUA WRP or another as yet unidentified location. Based on discussions with the Watermaster, the most likely location for this facility is in the northern portion of the Chino Basin in order to minimize energy costs related to delivery of the advanced treated water to water users. However, if a location within a safety zone is required compliance with HAZ-10 can reduce potential environmental impacts to a less than significant level.

Combined Project Categories
Most proposed projects' locations have not yet been determined, and therefore, have the potential to be within an airport land use plan, which in turn could result in a safety hazard to airport flight patterns, light, or navigation. Therefore, potential airport hazard impacts could be potentially significant.

Level of Significance Before Mitigation: Potentially Significant

Mitigation Measures:

HAZ-10: Prior to finalizing sit selection of an OBMPU facility with an airport safety zone, input from the affected airport management entity shall solicited. For projects within airport safety zones, facility design shall follow the guidelines of the appropriate airport land use plan to the extent feasible. If legitimate safety hazards are identified, the implementing agency shall relocate the facility outside the area of conflict if feasible, or if the site is deemed essential, the implementing agency shall propose an alternative design that reduces any conflict to a less than significant level of conflict. As an example, a pump station or reservoir could be installed below ground instead of above ground.

Level of Significance After Mitigation: Less Than Significant

The implementation of Mitigation Measure **HAZ-10** would ensure compliance with the appropriate airport land use plan and coordination with the appropriate airport management agencies to ensure safety for people residing or working within the project area. Implementation of Mitigation Measure **HAZ-10** would reduce potential impacts from development within an airport safety zone to a less than significant impact.

Cumulative Impact Analysis

*Cumulative Measures: Implementation of Mitigation Measure **HAZ-10** is required.*

Level of Significance After Mitigation: Less Than Significant

Implementation of Mitigation Measure **HAZ-10** would ensure that the proposed facilities' contribution to cumulative safety impacts from development within airport safety zones would be reduced to less than cumulatively considerable by requiring compliance with the appropriate airport land use plan and coordination with the appropriate airport management agencies.

f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

The highly urbanized portion of the Chino Basin and the Prado Wetlands have been designated by the Cal Fire as less than high or very high fire hazard severity zones. This is shown on the attached wildland fire Fire Hazard Severity Zone maps. Figures IX-1 through IX-4 show the fire hazard zones in the relevant portions of San Bernardino and Riverside Counties that encompass the Chino Basin. Almost all "high" or "severe" wildland fire hazard areas are located on the edges of the Chino Basin, or adjacent to isolated hills (Jurupa Hills) that interrupt the slope of the Chino Basin alluvial fan. As described below both the unmanned infrastructure proposed by the OBMPU and the location of this infrastructure occur in areas with at most moderated wildland fire hazards.

Project Category 1: Well Development and Monitoring Devices (PEs 1-9)
This project category includes development of ASR, injection, pumping, groundwater level, and water quality monitoring wells; associated well housing and monitoring devices such as flow meters and extensometers; and their operation. These wells would be installed throughout the Chino Basin, but with an emphasis on new ASR well facilities north of State Highway 60 (SH 60).

All project facilities under Category 1 would be contained within the boundaries of their specific sites which would not include any roadways. Project-related vehicles would not block existing street access to the sites project sites. Therefore, no impacts related to an emergency evacuation plans would occur from installation and operation of Category 1 OBMP facilities.

Operation of the proposed facilities would not impair or physically interfere with an adopted emergency response plan or emergency evacuation plan. The facilities all consist of wells and ancillary infrastructure which, during operation, would not interfere with traffic flows. However, aboveground facilities would require periodic maintenance. Maintenance activities would be random and require minimal trips that would not significantly impact the surrounding roadways. Impacts related to an adopted emergency plan would be considered less than significant during operation.

Project Category 2: Conveyance Facilities and Ancillary Facilities (PEs 2, 4-9)
This category includes the construction of an estimated 550,000 LF of new pipelines, booster pump stations, reservoirs, and supporting equipment. The proposed conveyance facilities and ancillary facilities would be implemented throughout the entire Chino Basin. It is assumed that most pipelines will be installed within existing, disturbed public rights-of-way (ROW) with support facilities in adjacent developed areas, including reservoirs.

The construction of the pipelines and aboveground facility installations would require construction along or in public roadways and could interfere with an adopted emergency response plan or emergency evacuation plan. All proposed pipelines are proposed to be constructed within public rights-of-way. This construction activity, and other anticipated construction activity associated with conveyance systems, could potentially block access to roadways and driveways for emergency vehicles. The construction-related impacts, although temporary, could potentially impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. Impacts could be potentially significant. Mitigation measure **HAZ-11** below would be required.

Following construction, operation of the pipelines would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan as they would be located underground. Aboveground ancillary facilities would require periodic maintenance. Maintenance activities would require minimal trips and would not significantly impact the surrounding roadways. Impacts related to an adopted emergency plan would be considered less than significant during operation.

Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands (PEs 2, 4-5, 8/9)
This category includes the construction of up to 310 acres of storage basins, including new basins and modifications/improvements to existing basins. It includes the use of up to 200 acres of agricultural land to support flood MAR facilities, new MS-4-compliance facilities and expansion of the maximum storage space (safe storage capacity) to be used in the Chino Basin from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af between this range of storage. The specific locations of the storage basins are described in the Project Description above; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

The proposed storage basins, recharge facilities and storage bands would not impair implementation of or physically interfere with adopted emergency response plans or emergency evacuation plans. There would be no installation of pipelines or other facilities within rights-of-way surrounding the project sites, making the possibility of interfering with evacuation routes highly unlikely. Deepening existing basins and creation of new storage basins along with drilling of wells would require additional truck haul trips to transport construction and debris materials to and from project sites; however, the proposed project would not impact the roadway in a way that would impede emergency evacuations. The truck trips would not require closure of any roadways and would only temporary slow traffic near project sites. All project facilities would be contained within the boundaries of the project sites, and project-related vehicles would not block existing street access to the sites. Therefore, no impacts related to an emergency evacuation plan would occur.

Operation of the proposed facilities would not impair or physically interfere with an adopted emergency response plan or emergency evacuation plan. The facilities consist of groundwater storage, recharge and extraction infrastructure which, during operation, would not interfere with traffic flows. However, aboveground ancillary facilities and wells would require periodic maintenance and/or monitoring. Maintenance activities would require minimal trips and would not significantly impact the surrounding roadways. Impacts related to an adopted emergency plan would be considered less than significant during operation.

Project Category 4: Desalters and Water Treatment Facilities (PEs 2, 4-9)
The projects proposed under this category include: upgrades at IEUA's existing Water Recycling Plants (WRPs, discussed in detail in IEUA's 2017 FMP PEIR); a new advanced water treatment plant; improvements to the WFA Agua de Lejos Treatment Plant; upgrades to the Chino Desalters, new groundwater treatment facilities at or near existing well sites and at regionally located sites; and improvements to existing groundwater treatment facilities.

The proposed desalters and water treatment facilities would not impair implementation of or physically interfere with adopted emergency response plans or emergency evacuation plans. There would be no installation of pipelines or other facilities within rights-of-way surrounding the project sites, making the possibility of interfering with evacuation routes highly unlikely. The truck trips associated with construction activities at the WRPs and Desalters would not require closure of any roadways and would only temporary slow traffic near project sites. All project facilities would be contained within the boundaries of the project sites, and project-related vehicles would not block existing street access to the sites. Therefore, no impacts related to an emergency evacuation plan would occur.

Operation of the proposed facilities would not impair or physically interfere with an adopted emergency response plan or emergency evacuation plan. The facilities consist of wastewater, desalting, and water treatment infrastructure which, during operation, would not interfere with traffic flows. However, aboveground ancillary facilities and wells would require periodic maintenance and/or monitoring. Maintenance activities would require minimal trips and would not significantly impact the surrounding roadways. Impacts related to an adopted emergency plan would be considered less than significant during operation.

Combined Project Categories
Project Category 2 proposed pipelines would be constructed within public rights-of-way. This construction activity, and other anticipated construction activity associated with conveyance systems, could potentially block access to roadways and driveways for emergency vehicles. The construction-related impacts, although temporary, could potentially impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. Impacts would be potentially significant.

Level of Significance Before Mitigation: Potentially Significant

Mitigation Measures:

***HAZ-11**: **Prior to initiating construction of proposed facilities, the implementing agency shall prepare and implement a Traffic Control Plan that contains comprehensive strategies for maintaining emergency access. Strategies shall include, but are not limited to, maintaining steel trench plates at the construction sites to restore access across open trenches and identification of alternate routing around construction zones. In addition, police, fire, and other emergency service providers shall be notified of the timing, location, and duration of the construction activities and the location of detours and lane closures. The implementing agency shall ensure that the Traffic Control Plan and other construction activities are consistent with the San Bernardino County Operational Area Emergency Response Plan, and are reviewed and approved by the local agency with authority over the roadways**.*

Level of Significance After Mitigation: Less Than Significant

The implementation of Mitigation Measure **HAZ-11** would require the preparation of a Traffic Control Plan with comprehensive strategies to reduce disruption to emergency access. Therefore, potential significant impacts to emergency access would be reduced to less than significant.

Cumulative Impact Analysis
The Chino Basin is largely urbanized with residential, commercial and industrial development. As the area continues to develop, the addition of more development could impair implementation of or physically

interfere with an adopted emergency response plans or emergency evacuation plans by constructing facilities within public rights-of-way. Since the proposed OBMPU pipelines would be constructed within public rights-of-way, impacts would be cumulatively considerable and therefore, would result in a potentially significant cumulative impact.

*Cumulative Measures: Implementation of Mitigation Measure **HAZ-11** is required.*

Level of Significance After Mitigation: Less Than Significant

The implementation of Mitigation Measure **HAZ-11** would ensure that the proposed facilities' contribution to cumulative emergency access impacts would be reduced to less than cumulatively considerable by requiring the preparation of a Traffic Control Plan with comprehensive strategies to reduce disruption to emergency access.

g. *Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?*

Project Category 1: Well Development and Monitoring Devices (PEs 1-9)
This project category includes development of ASR, injection, pumping, groundwater level, and water quality monitoring wells; associated well housing and monitoring devices such as flow meters and extensometers; and their operation. These wells would be installed throughout the Chino Basin, but with an emphasis on new ASR well facilities north of State Highway 60 (SH 60).

Proposed Project Category 1 projects would generally not expose people or structures to a significant risk of loss, injury or death involving wildland fires. The use of spark-producing construction machinery within a fire risk area could create hazardous fire conditions and expose people or structures to wildfire risks. Where thee well or ancillary facilities are located on built up land with some open space. CAL FIRE designates all areas immediately within or surrounding these areas as "Non-Very High Fire Hazard Severity Zone (Non-VHFHSZ). However, if Category 1 infrastructure must be installed within high or severe fire hazard areas, a potential exists to cause a significant wildfire hazard. Mitigation measure **HAZ-12** is required to address this circumstance.

During operation, the proposed facilities would function to pump and distribute water throughout the Chino Basin, and these facilities would not be constructed of flammable materials or involve any spark-producing activities, or human occupancy. Operational impacts of the proposed plan facilities would be less than significant with no mitigation.

Project Category 2: Conveyance Facilities and Ancillary Facilities (PEs 2, 4-9)
The proposed pipelines and ancillary facilities would be constructed primarily within paved roadway rights-of-way. CAL FIRE designates most of the areas within the Chino Basin as Non-VHFHSZs but some VHFHSZs are in Chino Hills, Upland, Rancho Cucamonga, and Fontana, and Jurupa Hills primarily around foothills containing wildlands near the boundaries of the Basin. Because not all of the ancillary facilities' locations are not determined at this time, there is a potential for facilities to be located within or near wildland areas with high fire risk. The use of spark-producing construction machinery within a fire risk area could create hazardous fire conditions and expose construction workers to wildfire risks. Impacts would be potentially significant, unless mitigation measure **HAZ-12** is implemented.

During operation, the proposed facilities would distribute recycled, imported, and treated water throughout the project area, and these facilities would not be constructed of flammable materials or involve any spark-producing activities. However, many of the ancillary facilities will be supplied and operate on electricity. Therefore, mitigation Measure **HAZ-12** shall be implemented for these facilities in high and very high fire severity zones. All ancillary facilities such as pump stations would be unmanned and would only require routine maintenance, therefore, no people would be exposed to a significant risk involving wildland fires. Operational impacts of the proposed plan facilities would be less than significant with implementation of mitigation measure **HAZ-12**.

Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands (PEs 2, 4-5, 8/9)
This category includes the construction of up to 310 acres of storage basins, including new basins and modifications/improvements to existing basins. It includes the use of up to 200 acres of agricultural land to support flood MAR facilities, new MS-4-compliance facilities and expansion of the maximum storage space (safe storage capacity) to be used in the Chino Basin from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af between this range of storage. The specific locations of the storage basins are described in the Project Description above; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

Impacts would be the same as Project Categories 1 and 2.

Project Category 4: Desalters and Water Treatment Facilities (PEs 2, 4-9)
The projects proposed under this category include: upgrades at IEUA's existing Water Recycling Plants (WRPs, discussed in detail in IEUA's 2017 FMP PEIR); a new advanced water treatment plant; improvements to the WFA Agua de Lejos Treatment Plant; upgrades to the Chino Desalters, new groundwater treatment facilities at or near existing well sites and at regionally located sites; and improvements to existing groundwater treatment facilities.

The desalters and WRPs already exist and are not within high or very high wildfire hazard zones. It is possible that a new advanced water treatment facility could be located in the northern portion of the Chino Basin in a high or very high wildfire hazard zone. Therefore, mitigation measure **HAZ-12** will be required to reduce potential wildfire fire hazard impacts to a less than significant impact level.

Combined Project Categories
Some proposed projects' locations are not determined at this time, and therefore, there would be potential for facilities to be located within or near a wildland area with high fire risk. Impacts would be potentially significant.

Level of Significance Before Mitigation: Potentially Significant

Mitigation Measures:

HAZ-12: ***During construction of facilities located in areas designated as High or Very High Fire Hazard Severity Zones (VHFHSZs) by CAL FIRE, fire hazard reduction measures shall be implemented and incorporated into a fire management plan for the proposed facility. These measures shall address all staging areas, welding areas, or areas slated for development that are planned to use spark-producing equipment. These areas shall be cleared of dried vegetation or other material that could ignite. Any construction equipment that includes a spark arrestor shall be equipped with a spark arrestor in good working order. During the construction of the project facilities, all vehicles and crews working at the project site to have access to functional fire extinguishers at all times. In addition, construction crews shall have a spotter during welding activities to look out for potentially dangerous situations, including accidental sparks. This plan shall be reviewed by CAL FIRE and approved prior to construction within high and very high severity zones and implemented once approved. The fire management plan shall also include sufficient defensible space or other measures at a facility site located in a high or very high fire severity area to minimize fire damage to a level acceptable to CAL FIRE.***

Furthermore, the Counties of Riverside and San Bernardino require businesses that use or store certain quantities of hazardous materials and submit a Hazardous Materials Business Plan (HMBP) that describes the hazardous materials usage, storage, and disposal to the Certified Unified Program Agency (CUPA). Further OBMPU facilities that meet these criteria must prepare an HMBP pursuant to the applicable local agency.

Level of Significance After Mitigation: Less Than Significant

The implementation of Mitigation Measure **HAZ-12** would ensure implementation of fire hazard reduction measures during construction in areas designated as VHFHSZs to reduce the potential for wildfire impacts on people or structures to a less than significant impact. Operational impacts would also be reduced to a less than significant impact.

Cumulative Impact Analysis

The Chino Basin is largely urbanized with residential, commercial and industrial development. As the service area continues to develop, the addition of more development could expose people or structures to a significant risk of loss, injury or death involving wildland fires. Since there would be potential for OBMPU projects to be located within or adjacent to areas with high wildland fire risks, impacts would be cumulatively considerable and therefore, would result in a potentially significant cumulative impact.

*Cumulative Measures: Mitigation measure **HAZ-12** is required to minimize project impacts.*

Level of Significance After Mitigation: Less Than Significant

The implementation of Mitigation Measure **HAZ-12** would ensure that the proposed facilities' contribution to cumulative impacts related to wildfires would be reduced to less than cumulatively considerable by implementing fire hazard reduction measures during construction and operations in areas designated as VHFHSZs to reduce the potential for wildfire impacts on people or structures.

SW San Bernardino County

FRAP
Fire and Resource Assessment Program
California Department of Forestry and Fire Protection

FIRE HAZARD SEVERITY ZONES IN SRA

Adopted by CAL FIRE on November 7, 2007

FIRE HAZARD SEVERITY ZONES in State Responsibility Area (SRA)

- Moderate
- High
- Very High

FIRE PROTECTION RESPONSIBILITY

- Federal Responsibility Area (FRA)
- Local Responsibility Area (LRA) - Unincorporated
- Local Responsibility Area (LRA) - Incorporated

Public Resources Code 4201-4204 direct the California Department of Forestry and Fire Protection (CAL FIRE) to map fire hazard within State Responsibility Areas (SRA), based on relevant factors such as fuels, terrain, and weather. These statutes were passed after significant wildland-urban interface fires; consequently these hazards are described according to their potential for causing ignitions to buildings. These zones referred to as Fire Hazard Severity Zones(FHSZ), provide the basis for application of various mitigation strategies to reduce risks to buildings associated with wildland fires. The zones also relate to the requirements for building codes designed to reduce the ignition potential to buildings in the wildland-urban interface zones.

These maps have been created by CAL FIRE's Fire and Resource Assessment Program (FRAP) using data and models describing development patterns, estimated fire behavior characteristics based on potential fuels over a 30-50 year time horizon, and expected burn probabilities to quantify the likelihood and nature of vegetation fire exposure to new construction. Details on the project and specific modeling methodology can be found at http://frap.cdf.ca.gov/projects/hazard/methods.htm.

The version of the map shown here represents the official "Maps of Fire Hazard Severity Zones in the State Responsibility Area of California" as required by Public Resources Code 4201-4204 and entitled in the California Code of Regulation, Title 14, Section 1280 Fire Hazard Severity Zones, and as adopted by CAL FIRE on November 7, 2007.

An interactive system for viewing map data is hosted by the UC Center for Fire at http://firecenter.berkeley.edu/fhsz/.

Questions can be directed to David Sapsis, at 916.445.5369, dave.sapsis@fire.ca.gov.

Projection Albers, NAD 1927
Scale 1: 100,000
at 51" x 35.5"
November 07, 2007

FIGURE IX-1

Arnold Schwarzenegger, Governor,
State of California
Mike Chrisman, Secretary for Resources,
The Resources Agency
Ruben Grijalva, Director,
Department of Forestry and Fire Protection

MAP ID: FHSZS_MAP
DATA SOURCES
CAL FIRE Fire Hazard Severity Zones (FHSZS06_3)
CAL FIRE State Responsibility Areas (SRA05_5)
CAL FIRE Incorporated Cities (Incorp07_3)
PLSS (1:100,000 USGS, Land Grants with CAL FIRE grid)

SW SAN BERNARDINO COUNTY

Government Code 51175-89 directs the California Department of Forestry and Fire Protection (CAL FIRE) to identify areas of very high fire hazard severity zones within Local Responsibility Areas (LRA). Mapping of the areas, referred to as Very High Fire Hazard Severity Zones (VHFHSZ), is based on data and models of, **potential** fuels over a 30-50 year time horizon and their associated expected fire behavior, and expected burn probabilities to quantify the likelihood and nature of vegetation fire exposure (including firebrands) to buildings. Details on the project and specific modeling methodology can be found at http://frap.fire.ca.gov/projects/hazard/fhz.html. Local Responsibility Area VHFHSZ maps were initially developed in the mid-1990s and are now being updated based on improved science, mapping techniques, and data.

In late 2005 to be effective in 2008, the California Building Commission adopted California Building Code Chapter 7A requiring new buildings in VH FHSZs to use ignition resistant construction methods and materials. These new codes include provisions to improve the ignition resistance of buildings, especially from firebrands. The updated very high fire hazard severity zones will be used by building officials for new building permits in LRA. The updated zones will also be used to identify property whose owners must comply with natural hazards disclosure requirements at time of property sale and 100 foot defensible space clearance. It is likely that the fire hazard severity zones will be used for updates to the safety element of general plans.

This specific map is based on a geographic information system dataset that depicts final CAL FIRE recommendations for Very High FHSZs within the local jurisdiction. The process of finalizing these boundaries involved an extensive local review process, the details of which are available at http://frap.cdf.ca.gov/projects/hazard/btnet/ (click on "Continue as guest without logging in"). Local government has 120 days to designate, by ordinance, very high fire hazard severity zones within its jurisdiction after receiving the recommendation. Local government can add additional VHFHSZs. There is no requirement for local government to report their final action to CAL FIRE when the recommended zones are adopted. Consequently, users are directed to the appropriate local entity (county, city, fire department, or Fire Protection District) to determine the status of the local fire hazard severity zone ordinance.

VERY HIGH FIRE HAZARD SEVERITY ZONES IN LRA

As Recommended By CAL FIRE

FIGURE IX-2

Arnold Schwarzenegger, Governor,
State of California
Mike Chrisman, Secretary for Resources,
The Resources Agency
Ruben Grijalva, Director,
Department of Forestry and Fire Protection

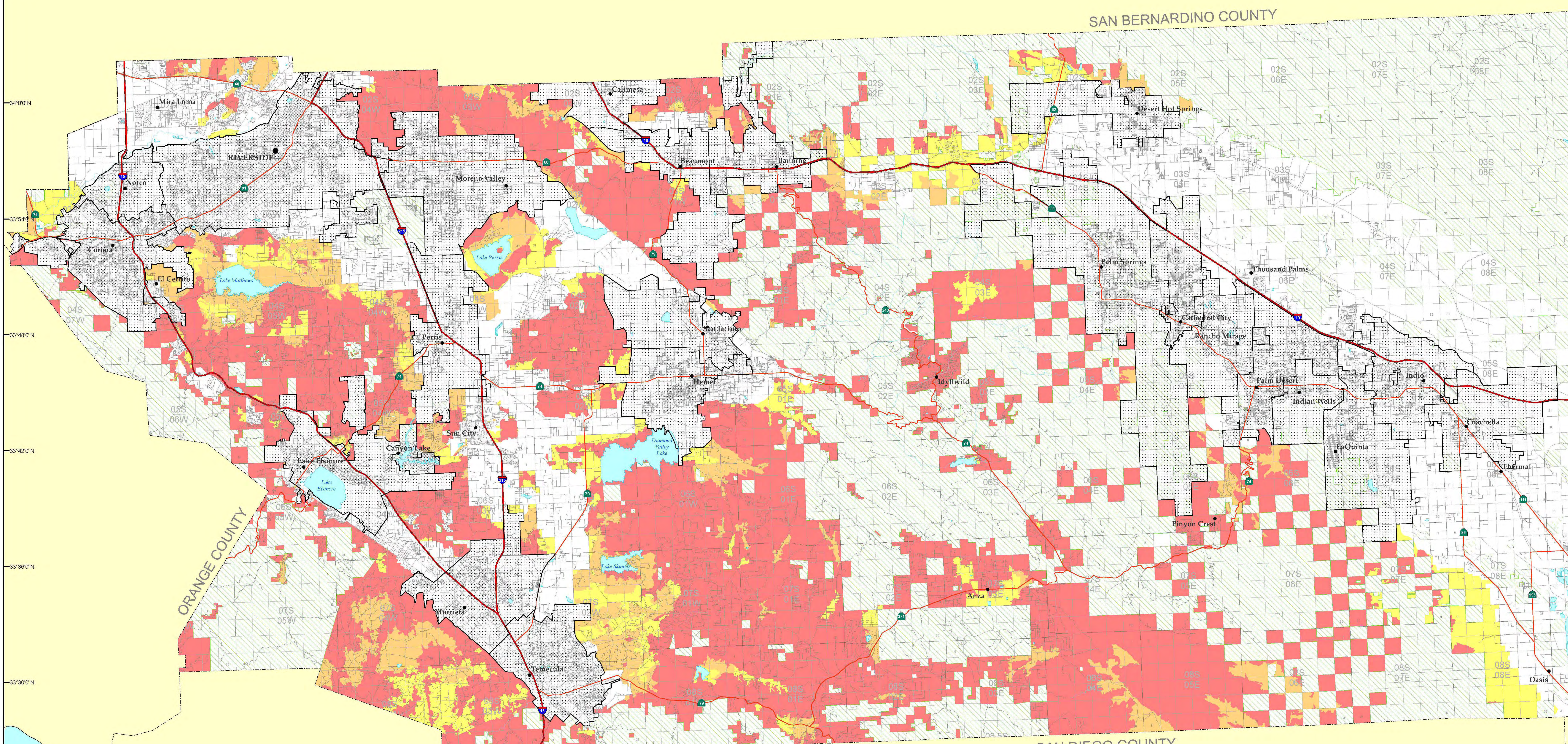
MAP ID: FHSZL_MAP
DATA SOURCES
CAL FIRE Fire Hazard Severity Zones (FHSZL06_3)
CAL FIRE State Responsibility Areas (SRA05_5)
CAL FIRE Incorporated Cities (Incorp07_3)
PLSS (1:100,000 USGS, Land Grants with CAL FIRE grid)

WESTERN RIVERSIDE COUNTY

CAL FIRE FRAP
Fire and Resource Assessment Program
California Department of Forestry and Fire Protection

FIRE HAZARD SEVERITY ZONES IN SRA

Adopted by CAL FIRE on November 7, 2007



FIRE HAZARD SEVERITY ZONES in State Responsibility Area (SRA)

- Moderate
- High
- Very High

FIRE PROTECTION RESPONSIBILITY

- Federal Responsibility Area (FRA)
- Local Responsibility Area (LRA) - Unincorporated
- Local Responsibility Area (LRA) - Incorporated

Public Resources Code 4201-4204 direct the California Department of Forestry and Fire Protection (CAL FIRE) to map fire hazard within State Responsibility Areas (SRA), based on relevant factors such as fuels, terrain, and weather. These statutes were passed after significant wildland-urban interface fires; consequently these hazards are described according to their potential for causing ignitions to buildings. These zones referred to as Fire Hazard Severity Zones(FHSZ), provide the basis for application of various mitigation strategies to reduce risks to buildings associated with wildland fires. The zones also relate to the requirements for building codes designed to reduce the ignition potential to buildings in the wildland-urban interface zones.

These maps have been created by CAL FIRE's Fire and Resource Assessment Program (FRAP) using data and models describing development patterns, estimated fire behavior characteristics based on potential fuels over a 30-50 year time horizon, and expected burn probabilities to quantify the likelihood and nature of vegetation fire exposure to new construction. Details on the project and specific modeling methodology can be found at http://frap.cdf.ca.gov/projects/hazard/methods.htm.

The version of the map shown here represents the official "Maps of Fire Hazard Severity Zones in the State Responsibility Area of California" as required by Public Resources Code 4201-4204 and entitled in the California Code of Regulation, Title 14, Section 1280 Fire Hazard Severity Zones, and as adopted by CAL FIRE on November 7, 2007.

An interactive system for viewing map data is hosted by the UC Center for Fire at http://firecenter.berkeley.edu/fhsz/

Questions can be directed to David Sapsis, at 916.445.5369, dave.sapsis@fire.ca.gov.

0 5 Miles

0 10 Kilometers

Projection Albers, NAD 1927
Scale 1: 150,000
at 40" x 34"
November 07, 2007

FIGURE IX-3

Obtain FRAP maps, data, metadata and publications on the Internet at http://frap.cdf.ca.gov
For more information, contact CAL FIRE-FRAP, PO Box 944246, Sacramento, CA 94244-2460, (916) 327-3939.

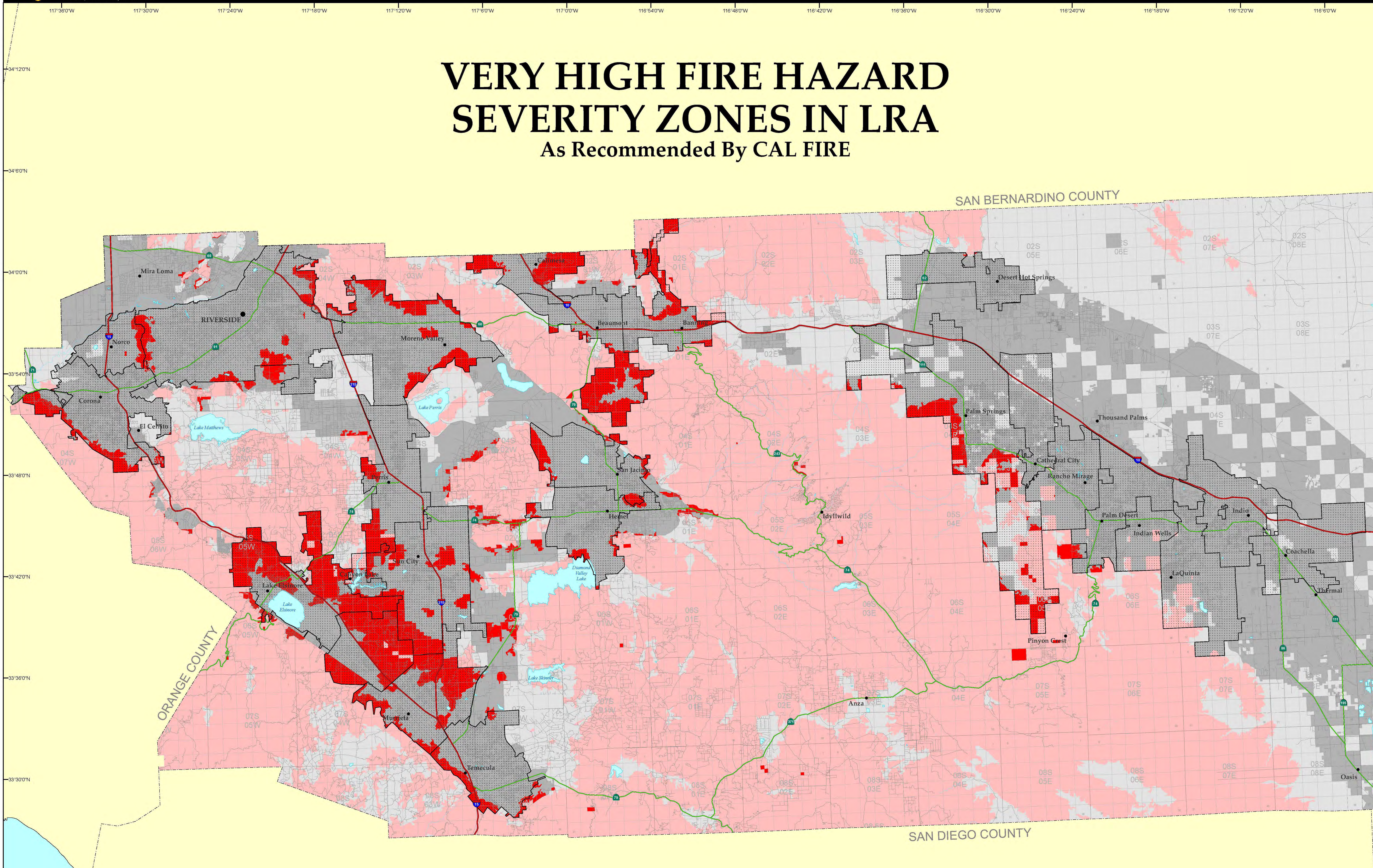
Arnold Schwarzenegger, Governor,
State of California
Mike Chrisman, Secretary for Resources,
The Resources Agency
Ruben Grijalva, Director,
Department of Forestry and Fire Protection

MAP ID: FHSZS_MAP

DATA SOURCES
CAL FIRE Fire Hazard Severity Zones (FHSZS06_3)
CAL FIRE State Responsibility Areas (SRA05_5)
CAL FIRE Incorporated Cities (Incorp07_3)
PLSS (1:100,000 USGS, Land Grants with CAL FIRE grid)

VERY HIGH FIRE HAZARD SEVERITY ZONES IN LRA

As Recommended By CAL FIRE



FIRE HAZARD SEVERITY ZONES

Local Responsibility Area	State or Federal Responsibility Area
VHFHSZ	VHFHSZ
Non-VHFHSZ	Non-VHFHSZ

Incorporated Cities

Government Code 51175-89 directs the California Department of Forestry and Fire Protection (CAL FIRE) to identify areas of very high fire hazard severity zones within Local Responsibility Areas (LRA). Mapping of the areas, referred to as Very High Fire Hazard Severity Zones (VHFHSZ), is based on data and models of, **potential** fuels over a 30-50 year time horizon and their associated expected fire behavior, and expected burn probabilities to quantify the likelihood and nature of vegetation fire exposure (including firebrands) to buildings. Details on the project and specific modeling methodology can be found at http://frap.fire.ca.gov/projects/hazard/fhz.html. Local Responsibility Area VHFHSZ maps were initially developed in the mid-1990s and are now being updated based on improved science, mapping techniques, and data.

In late 2005 to be effective in 2008, the California Building Commission adopted California Building Code Chapter 7A requiring new buildings in VH FHSZs to use ignition resistant construction methods and materials. These new codes include provisions to improve the ignition resistance of buildings, especially from firebrands. The updated very high fire hazard severity zones will be used by building officials for new building permits in LRA. The updated zones will also be used to identify property whose owners must comply with natural hazards disclosure requirements at time of property sale and 100 foot defensible space clearance. It is likely that the fire hazard severity zones will be used for updates to the safety element of general plans.

This specific map is based on a geographic information system dataset that depicts final CAL FIRE recommendations for Very High FHSZs within the local jurisdiction. The process of finalizing these boundaries involved an extensive local review process, the details of which are available at http://frap.cdf.ca.gov/projects/hazard/btnet/ (click on "Continue as guest without logging in"). Local government has 120 days to designate, by ordinance, very high fire hazard severity zones within its jurisdiction after receiving the recommendation. Local government can add additional VHFHSZs. There is no requirement for local government to report their final action to CAL FIRE when the recommended zones are adopted. Consequently, users are directed to the appropriate local entity (county, city, fire department, or Fire Protection District) to determine the status of the local fire hazard severity zone ordinance.

Projection Albers, NAD 1927
Scale 1: 150,000
at 40" x 34"
December 24, 2009

FIGURE IX-4

Arnold Schwarzenegger, Governor,
State of California
Mike Chrisman, Secretary for Resources,
The Natural Resources Agency
Del Walters, Director,
Department of Forestry and Fire Protection

MAP ID: FHSZL_MAP

DATA SOURCES
CAL FIRE Fire Hazard Severity Zones (FHSZL06_3)
CAL FIRE State Responsibility Areas (SRA05_5)
CAL FIRE Incorporated Cities (Incorp07_3)
PLSS (1:100,000 USGS, Land Grants with CAL FIRE grid)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
X. HYDROLOGY AND WATER QUALITY: Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	☒	☐	☐	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such the project may impede sustainable groundwater management of the basin?	☒	☐	☐	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
(i) result in substantial erosion or siltation onsite or offsite?	☒	☐	☐	☐
(ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding onsite or offsite?	☒	☐	☐	☐
(iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff? or,	☒	☐	☐	☐
(iv) impede or redirect flood flows?	☒	☐	☐	☐
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☒	☐	☐	☐
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☒	☐	☐	☐

SUBSTANTIATION

a-e. *Potentially Significant Impact* – Cumulatively, given that the proposed project involves the management of the Chino Groundwater Basin, the hydrology and water quality impacts related to the implementation of the OBMPU and associated facilities may be significant. A deeper analysis of this topic is required to determine the impacts that may result from each of the types of facilities proposed as part of the OBMPU. As a result, this topic will be further evaluated in the EIR.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
XI. LAND USE AND PLANNING: Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☒	☐	☐

SUBSTANTIATION

XI.1 Environmental Setting

The Chino Basin is one of the largest groundwater basins in Southern California and has an estimated unused storage capacity of over 1,000,000 acre-feet. The Chino Basin covers approximately 235 square miles within the Upper Santa Ana River Watershed and lies within portions of San Bernardino, Riverside, and Los Angeles counties. Exhibit 1 shows the location of the Chino Basin within the Upper Santa Ana River Watershed. The Chino Basin consists of an alluvial valley that is relatively flat from east to west, sloping from north to south at a one to two percent grade. Basin elevation ranges from about 2,000 feet adjacent to the San Gabriel foothills to about 500 feet near Prado Dam.

The Chino Basin includes the following incorporated cities: Chino, Chino Hills, Eastvale, Fontana, Jurupa Valley, Montclair, Ontario, Pomona, Rancho Cucamonga, and Upland. The Basin includes limited areas of unincorporated Riverside and San Bernardino Counties.

<u>**Land Use Designations by County and City**</u>

San Bernardino County
The County General Plan establishes 18 land use designations within 51,766 acres of the Valley Region. Nearly half, or 24,241 acres, of the Valley's 51,766 acres of unincorporated acreage is devoted to residential uses (County of San Bernardino, 2007). Land use designations within the Valley Region of the General Plan are provided in **Table XI-1** below.

Although San Bernardino County is the largest county in the contiguous United States, approximately 81 percent of the total, (10.5 million acres) are outside of the County jurisdiction. Approximately 6 million acres of federal public lands managed by the Bureau of Land Management, U.S. Forest Service, and 1.9 million acres are owned by the United States Department of Defense. Of the remaining 19 percent of the County's total land area, approximately 4 percent lies within 24 incorporated cities. Fifteen percent (about 1.9 million acres) is entirely under County jurisdiction. While the County influences a certain degree of development activity within these cities (primarily administrative buildings, criminal justice facilities, and certain limited infrastructure, including County-maintained roads and flood control facilities), the City Councils of these 24 cities directly regulate land use and planning therein (County of San Bernardino, 2007).

Table XI-1
COUNTY OF SAN BERNARDINO LAND USE DESIGNATIONS
IN THE VALLEY REGION PLANNING AREA

Land Use Designation	Acres
Residential	24,241
Commercial	2,155
Industrial	5,155
Agriculture	938

Land Use Designation	Acres
Resource Conservation	1,769
Floodway	5,281
Specific Plan	1,600
Institutional	2,875
Planned Development	7,216
Other	536
TOTAL	51,766
SOURCE: County of San Bernardino, 2007	

Riverside County

Compared to eastern Riverside County, the western portion of the county contains the greatest concentration of population and has experienced the greatest growth pressures. The majority of this population is concentrated in the incorporated cities of Corona, Riverside, Beaumont, Banning, Norco, Lake Elsinore, Perris, Hemet, San Jacinto, Moreno Valley, Calimesa, Canyon Lake, Murrieta, and Temecula.

The General Plan Land Use Map consists of five broad Foundation Component land uses: Agriculture, Rural, Rural Community, Open Space, and Community Development. Each of these is subdivided into more detailed land use designations at the area plan level. The Unincorporated Riverside County Cumulative Acreage Summary Table (**Table XI-2**) presents an itemized acreage summary for each General Plan Foundation Component. As shown on **Table XI-2**, the Rural, Agricultural, Rural Community and Open Space General Plan Foundation Component-designated lands account for 94% of the entire unincorporated area, with the remaining 7% devoted to urbanized uses, roadways, and Indian lands. Approximately 83% of the area in western Riverside County is designated for Agricultural, Rural, Rural Community, or Open Space uses, while these uses make up over 96% of the land in the eastern half of the county.

Table XI-1
COUNTY OF RIVERSIDE LAND USE DESIGNATIONS

Land Use Designation	Western County Area Plans Acreage	Total County Acreage
Agriculture	28,552	184,835
Rural	251,711	291,565
Rural Community	63,999	68,078
Open Space	659,418	3,288,199
Community Development	103,575	164,247
Other	79,087	109,540
TOTAL	**1,186,342**	**4,106,464**
SOURCE: County of San Bernardino, 2007 [1] Includes Indian Lands and Major Roadways. Does not include Cities and March JPA within Riverside County		

Chino

The City of Chino Hills is known for its rural atmosphere and its 3,000 acres of open space, 43 parks, 39 miles of recreational trails, and community buildings. Historically, the City's primary land use was open space with some scattered rural residential ranches. Much of the natural habitat of the area is preserved within the City of Chino Hills State Park, which is now the largest State Park in California located amongst an urban setting. In the late 1970s, development pressures gradually started moving to the City. Residential development and communities were clustered and concentrated in order to protect as much open space as possible and most commercial development was placed along the State Route 71 corridor (City of Chino Hills, 2016).

Table XI-3
CITY OF CHINO LAND USE DESIGNATIONS

Land Use Designation	Acres
Residential	5,949
Open Space (including Agriculture)	6,134
Commercial	883
Industrial	3,082
Other (including Public; Public Schools; Mixed Use; Airport-Related; and Community Core)	1,695
TOTAL	**17,743**
SOURCE: City of Chino, 2010	

Chino Hills

According to the City of Chino Hills *General Plan, Land Use Element*, much of the land in the City designated for development has been built. The majority of vacant land that remains consists of hillside properties and natural resource areas. Future development of residential uses will depend on regional transit links along major arterials (City of Chino Hills, 2016). Land use designations for the City of Chino Hills are identified in the Chino Hills General Plan and included below in **Table XI-4**.

Table XI-4
CITY OF CHINO HILLS LAND USE DESIGNATIONS

Land Use Designation	Acres
Residential	12,536
Commercial	1,403
Open Space	12,181
Institutional/Public Facility	633
Mixed Use	46
TOTAL	**26,799**[a]

[a] The City's total area, including properties with Land Use Designations and right-of-way, is 28,736 acres (or approximately 45 square miles). Public and private streets and State Route 71 are not provided with a Land Use Designation and are not included within the Total Acreages. In addition, public and private right-of-way occupies an additional 1,937 acres within the City's boundaries that are not included in the Total Acreage.
SOURCE: City of Chino Hills, 2015.

Eastvale

A decade ago, the Eastvale area existed as part of the larger Chino Dairy area, a world-famous concentration of dairies that at its height contained some 400 dairies and thousands of dairy cows. Eastvale, located in Riverside County, is part of the small portion of the former dairy area that was outside of San Bernardino County and therefore not subject to the long-term protection offered by the San Bernardino County Agricultural Preserve. Riverside County facilitated development of Eastvale with the adoption of the Eastvale Area Plan in 2003. A part of the Riverside County General Plan, the Eastvale Area Plan established the plan for land uses that is basically reflected in the development in place today. Existing (2011) land uses in the Planning Area are summarized in **Table IX-5** below, which addresses existing land uses by percentage of area within the City.

Table XI-5
CITY OF EASTVALE LAND USE DESIGNATIONS

Land Use Designation	Percentage of Acreage within the City
Residential (8-14 dwelling units (du)/acre)	5%
Residential (5-8 du/acre)	3%
Residential (2-5 du/acre)	50%
Residential (0.5-acre minimum lot)	4%
Conservation	10%
Open Space Recreation	4%
Agriculture	1%
Water	4%
Light Industrial	8%
Business Park	5%
Commercial Retail	3%
Public Facilities	1%
Freeway	2%
SOURCE: City of Eastvale, 2012	

Fontana

The City of Fontana was a rural and diversified farming community in the early 1900s and throughout the century shifted into a population-dense manufacturing center. The City is known by its early steel mill operations during World War II and was the region's leading producer of steel and steel-related products. The City's suburban location near Interstates 10, 15, and 210, along with the Union Pacific Railroad and other rail transportation corridors allow for a commuting option for citizens of surrounding areas (City of Fontana, 2016).

The City of Fontana is now a major Inland Empire hub of warehousing and distribution centers. Industrial and trucking-based land uses prosper and the City also contains a large portion of retailer and small businesses (City of Fontana, 2016). Warehouses, distribution centers, and heavy industrial uses are concentrated in the City's southern half adjacent to the Interstate 10 corridor.

Along with the commuter population, a range of residential land uses have developed within the City. Single and multi-family neighborhoods are located primarily within the center of the City along with commercial land uses. Newer residential units are being developed along the northern edge of the City and a large portion of the land is undeveloped as a mix of planned communities and job centers (City of Fontana, 2003). Land use designations for the City of Fontana are identified in the Fontana General Plan and included below in **Table XI-6**.

Table XI-6
CITY OF FONTANA LAND USE DESIGNATIONS

Land Use Designation	Acres
Residential	16,620
Commercial	2,440
Regional Mixed	761
Industrial	8,144
Public Facilities	1,056

Land Use Designation	Acres
Recreation Facilities	928
Public Utility Corridors	1,109
Open Space	1,568
Freeway	814
TOTAL	**33,440**
SOURCE: City of Fontana, 2003	

Jurupa Valley

In 2017, the young city is experiencing significant residential and industrial growth and has a mix of medium- and low-density residential development, equestrian and agricultural activities, and a mix of retail commercial, office, and industrial uses. In particular, the City is experiencing significant development interest for more industrial warehousing, and the Inland Empire's booming transportation/logistics industry has resulted in industrial and warehouse uses encroaching into historically residential and rural neighborhoods. This trend may have limited opportunities for development in the retail commercial, office, and job-rich manufacturing sectors.

Table XI-7 below shows the City's General Plan Land Uses, which are organized around 23 land use designations and 11 land use overlays.

Table XI-7
CITY OF JURUPA VALLEY LAND USE DESIGNATIONS

Land Use Designations	Acres
Rural Residential	103.6
Estate Residential	338.5
Very Low Density Residential	97.4
Low Density Residential	7,062.2
Medium Density Residential	3,901.1
Medium-High Density Residential	793.0
High Density Residential	292.9
Very High Density Residential	88.8
Highest Density Residential	212.0
Commercial Retail	1,105.7
Commercial Tourist	122.6
Commercial Neighborhood	43.3
Commercial Office	14.9
Business Park	673.8
Business Park Specific Plan	514.4
Light Industrial	3,076.8
Heavy Industrial	736.9
Open Space-Recreation	1,452.2
Open Space-Rural	1,131.6
Open Space-Conservation	683.5
Open Space-Conservation Habitat	971.1
Open Space-Mineral Resources	300.7

Land Use Designations	Acres
Open Space-Water	884.1
Railroad	168.5
Roadways/other	2,549.7
Public Facility/Institutional	527.0
TOTAL	**27,846.3**
SOURCE: City of Jurupa Valley, 2017	

Montclair

The City of Montclair was once a greenbelt of citrus groves located between the agricultural communities of Pomona and Ontario (City of Montclair, 2016). Currently, the City is primarily made up of residential land uses, intermixed with commercial development around Montclair Plaza, the Entertainment Plaza, and auto dealerships. The City contains very little open space and agriculture (City of Montclair, 1999).

The City is well known for its close proximity to private universities and colleges, including the prestigious Claremont Colleges, State universities, and several community colleges (City of Montclair, 2016). These educational institutions made the area a prime location for residential development. Additionally, the City is near Interstate 10, which allows for commuter access from Los Angeles County and other portions of the Inland Empire. Land use designations for the City of Montclair are identified in the Montclair General Plan and included below in **Table XI-8**.

Table XI-8
CITY OF MONTCLAIR LAND USE DESIGNATIONS

Land Use Designations	Acres
Residential	2,064
Senior Housing (S)	20
Office-Professional	20
Commercial	607
Business Park	230
Industrial Park	308
Limited Manufacturing	75
Public/ Quasi-Public	272
Neighborhood Park	49
Conservation Basin	82
Community Plan Area	160
Planned/Development Area	72
Medical Center	20
Freeway & Railroad Right-of-ways	159
TOTAL	**4,148**
SOURCE: City of Montclair, 1999	

Ontario

Similar to other cities within the program area, the City of Ontario was first developed as an agricultural community, largely but not exclusively devoted to citrus. Since World War II, the city has become much more diversified and now reflects an industrial and manufacturing economy. The City is well provided with major transportation corridors including railroads and freeways, along with the well-known Ontario

International Airport (City of Ontario, 2016). The primary land use within the City is residential, closely followed by industrial uses.

The area of the City located northwest of Interstate 10 is an older and more historic area that is characterized by residential and industrial land uses. The airport areas northeast of State Route 60 contains a large area of hospitality, industrial, warehousing, and distribution uses. The portion of the City south of State Route 60 is characterized by residential and planned-residential communities and retail oriented commercial centers (City of Ontario, 2010). Land use designations for the City of Ontario are identified in the City's General Plan and included below in **Table XI-9**.

Table XI-9
CITY OF ONTARIO LAND USE DESIGNATIONS

Land Use Designations	Acres
Residential	13,408.31
Commercial	2,745.5
Industrial	8,923.75
Government/Institutions	909.35
Utilities	448.51
Urban Mixed	1,140.7
Transportation	2,361.34
Open Space/Parks	1,975.1
TOTAL	**31,912.56**
SOURCE: City of Ontario, 2010; San Bernardino Association of Governments, 2013.	

Pomona

Pomona's land uses are arranged in an overall pattern typical of the City's age, topography, and western U.S. location. The City's relatively uniform topography with few physical constraints has allowed for a relatively uniform street grid with residential neighborhoods and commercial corridors radiating from the traditional mixed-use Downtown core. Residential neighborhoods located farther from Downtown and along the hillsides to the north and south were built later in the 20th century and are more consistently residential in use. At the western and eastern edges of the City, large industrial areas have developed with access to railway and major roadway arteries. Although Pomona is characterized by a diverse range of land uses, almost half of the City's land area (48%) is devoted to public uses including parks, dedicated open spaces, schools and community facilities as well as streets and other rights-of-way. The remaining land containing private development is composed primarily of housing, which accounts for 35% of the City's land area. Less predominant in terms of land area are industrial (8%), commercial (4%) and office (1%) uses. Vacant lands comprise 4% of the City's land area and are located throughout the City, particularly in the older areas and in the industrial districts.

Table XI-10
CITY OF POMONA LAND USE DESIGNATIONS

Land Use Designation	Percentage of Acreage within the City
Residential	35%
Streets and Other Right-of-Way	24%
Public Lands	24%
Vacant Land	4%
Industrial	8%

Land Use Designation	Percentage of Acreage within the City
Commercial	4%
Professional Office	1%
SOURCE: City of Pomona, 2014	

Rancho Cucamonga
The City of Rancho Cucamonga is predominantly a residential community that is largely built-out. Commercial centers and industrial land uses are primarily clustered along Foothill Boulevard, Base Line Road, and several other major roadways. The northern edge of the City is dominated by open space and hillside terrain (Rancho Cucamonga, 2010).

The residential character of Rancho Cucamonga can be described as primarily low- density and consisting of high-quality, stable neighborhoods. Most residential uses located in the northern areas include large lot, detached homes. Commercial uses vary greatly, from regional shopping centers to smaller neighborhood retail stores. Industrial uses range from heavy industrial such as Tamco Steel and Mission Foods, to warehouses, distribution centers, and light industrial that include business parks and office uses. Most of the industrial uses are located south of Foothill Boulevard, with the heavy industrial uses located on both sides of I-15 (Rancho Cucamonga, 2010). Land use designations for the City of Rancho Cucamonga identified in the City's General Plan and included below in **Table XI-11**.

Table XI-11
CITY OF RANCHO CUCAMONGA LAND USE DESIGNATIONS

Land Use Designation	Acres
Residential	10,435
Commercial	660
Mixed Use	702
Industrial	3,203
Public Facilities	3,104
Schools	536
Parks	347
Open Space and Conservation	1,893
Vacant	5,671
TOTAL	26,551
SOURCE: City of Rancho Cucamonga, 2010	

Upland
The City of Upland was once dominated by citrus groves. It is located at the foot of the San Gabriel Mountains and is known for preserving a small-town character while being a medium-sized city. The City is located directly east of the Los Angeles Metropolitan area and has attracted many commuters due to easy access to Interstate 10 and 210. The City's economic anchors are the downtown area, San Antonio Hospital, and Cable Airport. Planning efforts such as revitalizing the City's historic downtown area, protection of historic buildings, and strengthening of local business, support the integrity of the City's character. In recent years, the City developed planning efforts of becoming more economically diverse by shifting planned land uses from residential development to industrial and commercial uses (City of Upland, 2015). Land use designations for the City of Upland identified in the City's General Plan and included below in **Table XI-12**.

Table XI-12
CITY OF UPLAND LAND USE DESIGNATION

Land Use Designations	Acres
Residential	5,797.01
Commercial	1442.09
Industrial	1,234.69
Government/Institutions	333.96
Transportation	327.2
Open Space/Parks	666.15
Utilities	179.39
TOTAL	**9,980.49**
SOURCE: City of Upland, 2015; San Bernardino Association of Governments, 2013.	

Regional Plans

Southern California Association of Governments

The Southern California Association of Governments (SCAG) is the federally mandated Metropolitan Planning Organization representing six counties: Los Angeles, Imperial, Orange, Riverside, San Bernardino, and Ventura. The SCAG Regional Comprehensive Plan addresses important regional issues such as housing, traffic/transportation, water, and air quality and serves as an advisory planning document to support and encourage local agencies in their planning efforts.

San Bernardino Associated Governments

San Bernardino Associated Governments (SANBAG) is the council of governments and transportation planning agency for San Bernardino County. SANBAG is responsible for cooperative regional planning and furthering an efficient multi-modal transportation system countywide. SANBAG serves the 2.1 million residents of San Bernardino County.

As the County Transportation Commission, SANBAG supports freeway construction projects, regional and local road improvements, train and bus transportation, railroad crossings, call boxes, ridesharing, congestion management efforts and long-term planning studies.

Airport Land Use Compatibility Plans

The California State Legislature enacted airport land use planning laws which are intended to:

- Provide for the orderly development of each public use airport in the State and the area surrounding these airports so as to promote the overall goals and objectives of the California airport noise standards adopted pursuant to Section 21669 and to prevent the creation of new noise and safety problems; and
- Protect public health, safety, and welfare by ensuring the orderly expansion of airports and the adoption of land use measures that minimize the public's exposure to excessive noise and safety hazards within areas around public airports to the extent that these areas are not already devoted to incompatible uses.

The general mechanism that the statutes provided for compliance with the airport planning laws is for counties to establish an airport land use compatibility plan (ALUCP). The purpose of an ALUCP is to effectively identify areas, located outside of the airport proper, which would be influenced by the future operations of the airport. Planning boundaries are established on the perimeters of these areas, which are plotted, by applying the specific operational criteria of the airport, to various planning models that have been primarily developed by the FAA.

There are several airports within San Bernardino County and 15 airport land use compatibility plans for airports serving San Bernardino County. The three public airports within the program area include Chino Airport, the LA/Ontario International Airport, and the Cable Airport, all of which have ALUCPs (County of San Bernardino, 2016).

XI.2 Impact Discussion

The precise design, location and configuration of facilities associates with each OBMPU project have not yet been finalized and are subject to adjustment based on future circumstances. Proposed facilities include aboveground structures such as groundwater treatment plants, treatment and desalter expansions, pump stations, storage reservoirs, wellheads, and portions of storage basins. Other facilities would be located underground or within surface flows, such as pipelines, monitoring devices, and wells. Land use impacts associated with underground structures would be short-term and would only occur during the construction phase of project implementation. Long-term land use impacts would be associated with aboveground structures.

The San Bernardino County General Plan states that:
Having a current and forward-looking general plan will:

- *Ensure adequate infrastructure services and community facilities to support projected growth in the County; and*
- *Ensure timely development of public facilities and the maintenance of adequate service levels for these facilities to meet the needs of current and future*

Furthermore, the San Bernardino County General Plan states the following goals:

GOAL CI 11. The County will coordinate and cooperate with governmental agencies at all levels to ensure safe, reliable, and high-quality water supply for all residents and ensure prevention of surface and ground water pollution. County residents.

GOAL CI 12. The County will ensure adequate wastewater collection, treatment, and disposal consistent with the protection of public health and water quality.

The statements and goals outlined above, which can be found in the San Bernardino County General Plan, are echoed throughout the General Plans that pertain to the area within which the Chino Basin is located, and as discussed under XI. Environmental Setting above. Therefore, the General Plans that pertain to the area within which the Chino Basin is located support the provision of adequate infrastructure, such as that which is proposed by the OBMPU.

Would the project:

a. Physically divide an established community?

The project does not propose any action that could physically divide an established community. The physical division of an established community generally refers to the construction of features such as an interstate highway, railroad tracks, or permanent removal of a means of access, such as a local road or bridge that would impact mobility within an existing community or between a community and outlying area.

Project Category 1: Well Development and Monitoring Devices (PEs 1-9)
This Project Category includes the development of ASR, injection, pumping, groundwater level monitoring, and groundwater quality wells, associated well housing, as well as monitoring devices such as flow meters and extensometers. The proposed wells and monitoring devices will be installed throughout the Chino Basin.

The exact locations of the proposed wells and monitoring devices have not yet been determined; however, there are no features of these wells and monitoring devices that would create a barrier or physically divide an established community, particularly given the small area (a half acre or less) required to implement the facilities proposed as part of this Project Category. No impacts are anticipated.

Project Category 2: Conveyance Facilities and Ancillary Facilities (PEs 2, 4-9)
This category includes the construction of 550,000 LF of new pipelines, booster pump stations, reservoirs and minor appurtenances whose number. The proposed conveyance facilities and ancillary facilities would be implemented throughout the entire Chino Basin.

Proposed conveyance system pipelines and ancillary facilities are anticipated to be constructed primarily within existing public rights-of-way. Once linear pipelines are constructed, some ancillary facilities could be located aboveground within close proximity to the public rights-of-way. The exact locations of the ancillary facilities have not yet been determined; however, there are no features of these ancillary facilities, such as pump stations and reservoir tanks, that would create a barrier or physically divide an established community, particularly given that in many communities, ancillary facilities such as steel or concrete reservoirs are integrated into the landscape unobtrusively. As such, no impacts are anticipated.

Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands (PEs 2, 4-5, 8/9)
This Project Category includes the construction of 310 acres of new storage basins—several locations for which are within existing facilities, improvements to existing storage basin(s), 200 acres of flood MAR facilities, new MS4-compliance facilities, and expansion of the maximum storage space (safe storage capacity) to be used within the Chino Basin from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af between this range of storage. The specific locations of the storage basins are described in the Project Description above; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

The potential to physically divide an established community related to the development of new and improvement of existing storage basins at existing facilities (Jurupa Basin, Lower Cucamonga Ponds, Mills Wetlands, and Riverside Basin) would be minimal because these sites are currently developed and the addition of water storage facilities would be consistent with the existing uses. As such, no impacts are anticipated.

The construction of new storage basins (CIM, Vulcan Basin, and Confluence Project), MS4 facilities, and flood MAR facilities at new sites would be developed at either known sites that have not been developed, or at sites for which the location has not been determined; however, there are no features of these storage basins, MS4 facilities, and flood MAR facilities that in and of themselves would create a barrier or physically divide an established community. Therefore, no impacts are anticipated.

The proposed expansion of the safe storage capacity from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward would not result in any large, visible above ground impacts. As such, no potential to physically divide an established community exists.

Project Category 4: Desalters and Water Treatment Facilities (PEs 2, 4-9)
The projects proposed under this category are: upgrades at IEUA's existing Treatment Plants (discussed in IEUA's 2017 FMP PEIR), a new advanced water treatment plant (discussed in IEUA's 2017 FMP PEIR), improvements to the WFA Agua de Lejos Treatment Plant, upgrades to the Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities.

Upgrades and improvements to existing facilities (WFA Agua de Lejos Treatment Plant, Chino Desalters, and existing groundwater treatment facilities) would occur within developed sites already containing desalter or water treatment facilities. There are no features of the treatment facility upgrades that would create a barrier or physically divide an established community. Aboveground facilities would be integrated into the existing urban/industrial character surrounding a treatment plant. As such, there would be no impact.

Similar to upgrades and improvements to existing treatment facilities, groundwater treatment facilities at well sites would occur within a site containing one or more wells. As such, the addition of groundwater treatment facilities would be consistent with that which exists at present at the well sites, and would have no potential to physically divide an established community.

The exact locations of the proposed groundwater treatment facilities (regional and near well sites) have not yet been determined; however, there are no features of these treatment facilities that would create a barrier or physically divide an established community. No impacts are anticipated.

Combined Project Categories

Level of Significance Before Mitigation: No Impact

Mitigation Measures: None Required.

Level of Significance After Mitigation: No Impact.

b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

As stated in the Introduction under XII. Impact Discussion above, the Cities and Counties that overlap with the Chino Basin area have adopted General Plans that support the provision of adequate infrastructure, such as that which is proposed by the OBMPU.

Project Category 1: Well Development and Monitoring Devices (PEs 1-9)

This Project Category includes the development of ASR, injection, pumping, groundwater level monitoring, and groundwater quality wells, associated well housing, as well as monitoring devices such as flow meters and extensometers. The proposed wells and monitoring devices will be installed throughout the Chino Basin.

Once constructed, the proposed wells would occupy a footprint anticipated to be less than 20 feet by 20 feet, though in most cases, the area a well would occupy would be about 10 feet by 10 feet. The proposed extensometers would be installed within wells, and as such would not occupy any greater space than identified above, and the proposed flow meters would be located at or below ground level within streams and channels to monitor surface water, and therefore would have no potential to conflict with land use designation. Because the precise location for future wells is presently unknown, wells may be developed across other designated land uses. Per Government Code Section 53091, building ordinances of local cities or counties do not apply to the location or construction of facilities for the projection, generation, storage, treatment, or transmission of water or wastewater. Therefore, any project facilities that conflict with local General Plan land use designations would not be subject to a conditional use permit or general plan amendment. The Watermaster or Implementing Agency would determine the most suitable locations to place facilities, taking into consideration surrounding land uses. The Watermaster or Implementing Agency would coordinate directly with local agencies with jurisdiction to ensure compatibility with existing adjacent land uses. Mitigation is provided below to minimize land use incompatibilities (such as lighting, noise, use of hazardous materials, traffic, etc.) with adjacent uses.

Project Category 2: Conveyance Facilities and Ancillary Facilities (PEs 2, 4-9)

This category includes the construction of 550,000 LF of new pipelines, booster pump stations, reservoirs and minor appurtenances whose number. The proposed conveyance facilities and ancillary facilities would be implemented throughout the entire Chino Basin.

Pipelines and ancillary facilities would be installed primarily within or adjacent to public rights-of-way to the extent feasible and would not conflict with land use designations or be incompatible with neighboring land uses. In addition, underground pipelines, once constructed would not pose long-term incompatibility with land uses. Some pipelines and ancillary facilities may be installed across other designated land uses, though there is a potential for the implementing Agency to use existing structures for proposed ancillary facilities. Per Government Code Section 53091, building ordinances of local cities or counties do not apply to the location or construction of facilities for the projection, generation, storage, treatment, or transmission of water or wastewater. Therefore, any project facilities that conflict with local General Plan land use designations would not be subject to a conditional use permit or general plan amendment. The Watermaster or Implementing Agency would determine the most suitable locations to place facilities, taking into consideration surrounding land uses. The Watermaster or Implementing Agency would coordinate directly with local agencies with jurisdiction to ensure compatibility with existing adjacent land uses. Mitigation is provided below to minimize land use incompatibilities (such as lighting, noise, use of hazardous materials, traffic, etc.) with adjacent uses.

Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands (PEs 2, 4-5, 8/9)
This Project Category includes the construction of 310 acres of new storage basins—several locations for which are within existing facilities, improvements to existing storage basin(s), 200 acres of flood MAR facilities, new MS4-compliance facilities, and expansion of the maximum storage space (safe storage capacity) to be used within the Chino Basin from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af between this range of storage. The specific locations of the storage basins are described in the Project Description above; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

Facilities located within existing storage basins at existing facilities (Jurupa Basin, Lower Cucamonga Ponds, Mills Wetlands, and Riverside Basin) would be consistent with the existing land uses. All storage basin improvements would be consistent with the character of the facilities on site and would not substantially alter the existing character of the facilities. Furthermore, per Government Code Section 53091, building ordinances of local cities or counties do not apply to the location or construction of facilities for the projection, generation, storage, treatment, or transmission of water or wastewater. As such, there is a less than significant potential to conflict with land use designations or existing neighborhood land uses.

The construction of new storage basins (CIM, Vulcan Basin, and Confluence Project), MS4 facilities, and flood MAR facilities at new sites would be developed at either known sites that have not been developed, or at sites for which the location has not been determined. Impacts to new storage basins, MS4 facilities, and flood MAR facilities at new sites would be the same as Project Category 2.

The proposed expansion of the safe storage capacity from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward would not result in any visible above ground impacts other than the facilities discussed in the preceding text which are intended to support this expansion. As such, no impacts to land use can occur from these facilities.

Project Category 4: Desalters and Water Treatment Facilities (PEs 2, 4-9)
The projects proposed under this category are: upgrades at IEUA's existing Treatment Plants (discussed in IEUA's 2017 FMP PEIR), a new advanced water treatment plant (discussed in IEUA's 2017 FMP PEIR), improvements to the WFA Agua de Lejos Treatment Plant, upgrades to the Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities. The impacts to land use related to the facilities thoroughly analyzed as part of the IEUA's 2017 FMP PEIR, and will not be analyzed further as part of this Initial Study.

Upgrades and improvements to existing facilities (WFA Agua de Lejos Treatment Plant, Chino Desalters, and existing groundwater treatment facilities) and groundwater treatment facilities at well sites would occur within developed sites already containing desalter, water treatment facilities or wells, and as such, treatment facility upgrades would be located within existing sites designated for this use. All facility upgrades and improvements would be consistent with the character of the existing facility and would not substantially alter the existing character of the facilities. As such, there would be no conflicts with land use designations or existing neighborhood land uses.

The location for regional groundwater treatment facilities and groundwater treatment facilities near well sites is presently unknown. Groundwater treatment facilities near well sites would occupy an area of about

0.5 acre to 2 acres. Impacts to regional groundwater treatment facilities and groundwater treatment facilities near well sites would be the same as Project Category 2 and 3.

Combined Project Categories

Level of Significance Before Mitigation: Potentially Significant

Mitigation Measures:

LU-1: ***Following selection of sites for future OBMPU-related facilities, each site and associated facility shall be evaluated for potential incompatibility with adjacent existing or proposed land uses. Where future facility operations can create significant incompatibilities (lighting, noise, use of hazardous materials, traffic, etc.) with adjacent uses, an alternative site shall be selected, or subsequent CEQA documentation shall be prepared that identifies the specific measures that will be utilized to reduce potential incompatible activities or effects to below significance thresholds established in the general plan for the jurisdiction where the facility will be located.***

Level of Significance After Mitigation: Less Than Significant Impact

Mitigation measure **LU-1** would ensure that the facilities associated with the OBMPU are developed in appropriate areas, and conform with the surrounding land uses or are developed to minimize conflicts with adjacent land uses. This measure will minimize impacts below significance thresholds.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
XII. MINERAL RESOURCES: Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☒	☐	☐
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☒	☐	☐

SUBSTANTIATION:

XII.1 Environmental Setting

Mineral Resources

Minerals are naturally occurring chemical elements or compounds, or groups of elements or compounds that were not formed by organisms. Naturally occurring concentrations of minerals in the earth's crust are known as mineral deposits. Mineral resources are mineral deposits from which the economic extraction of a commodity (such as gold or copper) is currently potentially feasible. In addition to metallic minerals, materials used for construction (e.g., sand and aggregate), industrial and chemical processes (e.g., salt), and fuel (e.g., crude oil) are considered mineral resources in California.

In accordance with the Surface Mining and Reclamation Act of 1975, the California Department of Conservation, Division of Mines and Geology, currently known as the California Geological Survey (CGS), has mapped nonfuel mineral resources of the State to show where economically significant mineral deposits are either present or likely to occur based on the best available scientific data. These resources have been mapped using the California Mineral Land Classification System, which includes the following Mineral Resource Zones (MRZs):[37]

- MRZ-1: Areas where the available geologic information indicates no significant mineral deposits or a minimal likelihood of significant mineral deposits.
- MRZ-2a: Areas where the available geologic information indicates that there are significant mineral deposits.
- MRZ-2b: Areas where the available geologic information indicates that there is a likelihood of significant mineral deposits.
- MRZ-3a: Areas where the available geologic information indicates that mineral deposits are likely to exist, however, the significance of the deposit is undetermined.
- MRZ-4: Areas where there is not enough information available to determine the presence or absence of mineral deposits.

Mineral deposits in the Chino Basin area important to many industries, including construction, transportation and chemical processing. The value of mineral deposits within the Chino Basin area is enhanced by their close proximity to urban areas. However, these mineral deposits are endangered by the same urbanization that enhances their value. The only significant mineral resources that occur within or near the project area are limestone, sand and gravel, crushed rock and rip rap. The location of these resources is primarily in the Jurupa and Pedley Hills, and also near the Santa Ana River.

The non-renewable characteristic of mineral deposits necessitates the careful and efficient development of mineral resources, in order to prevent the unnecessary waste of these deposits due to careless exploitation and uncontrolled urbanization. Management of these mineral resources will protect not only future development of mineral deposit areas, but will also guide the exploitation of mineral deposits so that adverse impacts caused by mineral extraction will be reduced or eliminated.

[37] County of Riverside General Plan, 2015

The Department of Conservation identifies large areas of the Chino Basin as MRZ-3 with localized areas designated as MRZ-1 and MRZ-2. MRZ-3 designations are in the cities of Chino and most portions of Ontario and Jurupa Valley. Most of the MRZ-3 areas contain construction aggregate deposits, the significance of which cannot be evaluated from preliminary data. MRZ-2 areas are located within the cities of Upland, Montclair, Rancho Cucamonga, small portions of Jurupa Valley, and some northern portions of Fontana in areas are located in the City of Fontana North of the Interstate 10 Freeway, and in areas surrounding the San Antonio Creek as it flows through the Chino Basin. Currently, there are no active mining activities within the City of Montclair because past mining activities have left several large pits in Montclair and Upland, which are now being used for flood control and water conservation purposes.[38]

MRZ-1 designations occur in a small portion of eastern Jurupa Valley, southern areas of Chino and in the City of Chino Hills.[39] The MRZ-1 area located in the City of Chino is comprised primarily by shale, siltstone, carbonates and chlorite schist. These materials are considered unsuitable for use as aggregate. Fine grained sedimentary deposits also exist in this zone which are also unsuitable for use as aggregate.[40]

XII.2 Impact Discussion

a. *Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?*

Project Category 1: Well Development and Monitoring Devices (PEs 1-9)
This Project Category includes the development of ASR, injection, pumping, groundwater level monitoring, and groundwater quality wells, associated well housing, as well as monitoring devices such as flow meters and extensometers. The proposed wells and monitoring devices will be installed throughout the Chino Basin.

Implementation of the proposed well development and monitoring devices would not interfere with the exploitation of mineral resources. As stated under XII Environmental Setting above, much of the Chino Basin has been urbanized, resulting in very few areas containing mineral resources that are not utilized for mining activities. The flow meters will be located within surface water, and as such would not result in the loss of available known mineral resources. The proposed wells will be located within sites less than one half acre in size, and as such, are not anticipated to interfere with the exploitation of mineral resources. Many wells can be located within mineral extraction facilities with no conflict to the mining operations. Therefore, implementation of improvements within Project Category 1 would not result in the loss of availability mineral resource that would be of value to the region and residents of the state. Impacts would be less than significant.

Project Category 2: Conveyance Facilities and Ancillary Facilities (PEs 2, 4-9)
This category includes the construction of 550,000 LF of new pipelines, booster pump stations, reservoirs and minor appurtenances whose number. The proposed conveyance facilities and ancillary facilities would be implemented throughout the entire Chino Basin.

Implementation of the proposed conveyance facilities would be located within existing rights-of-way that would not include areas actively being excavated or prevent areas from being accessed for future extraction of mineral resources. The proposed ancillary facilities such as pump stations and reservoirs are not anticipated to require a large footprint, such that ancillary facility projects would interfere with the exploitation of mineral resources. Therefore, implementation of improvements within Project Category 2 would not result in the loss of availability mineral resource that would be of value to the region and residents of the state. Impacts would be less than significant.

[38] City of Montclair General Plan, 1999
[39] Department of Conservation, https://maps.conservation.ca.gov/cgs/informationwarehouse/index.html?map=mlc
[40] City of Chino General Plan

Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands (PEs 2, 4-5, 8/9)
This Project Category includes the construction of 310 acres of new storage basins—several locations for which are within existing facilities, improvements to existing storage basin(s), 200 acres of flood MAR facilities, new MS4-compliance facilities, and expansion of the maximum storage space (safe storage capacity) to be used within the Chino Basin from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af between this range of storage. The specific locations of the storage basins are described in the Project Description above; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

Proposed storage basins will be located within sites that have been identified. None of these sites contains mineral resources.[41] Flood MAR facilities and new MS4 compliance projects may have a large footprint though would not include any ancillary facility that would be large enough to interfere with the exploration of future mineral resources. However, if Flood MAR facilities or new MS4 compliance projects were to be implemented within a mineral resource zone, there is a nominal potential for future groundwater treatment facilities to be located within a site containing mineral resources, which could result in the loss of available mineral resources. As such, mitigation is required in order to minimize potential impacts thereof.

The proposed expansion of the safe storage capacity from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward would not result in any visible above ground impacts beyond those facilities associated with the OBMPU designed to support this expansion as discussed herein. As such, no loss of mineral resources is anticipated.

Project Category 4: Desalters and Water Treatment Facilities (PEs 2, 4-9)
The projects proposed under this category are: upgrades at IEUA's existing Treatment Plants (discussed in IEUA's 2017 FMP PEIR), a new advanced water treatment plant (discussed in IEUA's 2017 FMP PEIR), improvements to the WFA Agua de Lejos Treatment Plant, upgrades to the Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities. Seismic impacts related to the facilities thoroughly analyzed as part of the IEUA's 2017 FMP PEIR will not be analyzed further as part of this Initial Study.

The proposed upgrades to the WFA Agua de Lejos Treatment Plant and to the Chino Desalters, new groundwater treatment facilities at well sites and improvements to existing groundwater treatment facilities would occur within developed sites containing infrastructure pertaining to the treatment of water or wastewater. Regionally significant mineral resources are not known to occur within the existing treatment facilities. Therefore, the proposed upgrades would not prevent the future availability of a known regionally-significant mineral resource to be obtained in other portions of the Chino Basin.

The proposed new groundwater treatment facilities near well sites and at regionally located sites may have a large footprint, particularly regional groundwater treatment facilities. Given that there are a few important mineral resources zones located within Chino Basin, there is a nominal potential for future groundwater treatment facilities to be located within a site containing mineral resources, which could result in the loss of available mineral resources. As such, mitigation is required in order to minimize potential impacts thereof.

Combined Project Categories

Level of Significance Before Mitigation: Potentially Significant

Mitigation Measures:

MR-1: ***For each new groundwater treatment facility (regionally located or near existing well sites), Flood MAR facility, and MS4 compliance site, the Implementing Agency shall locate these facilities outside of sites designated for the extraction of or as containing significant mineral resources (such as, located within MRZ-2 zones) or otherwise***

[41] https://maps.conservation.ca.gov/cgs/informationwarehouse/index.html?map=regulatorymaps

identified by the local jurisdiction as containing important mineral resources (such as, designated by the local general plan as being located within a mineral extraction related land use). Where it is not feasible to locate such facilities outside of sites designated for mineral resources, a subsequent CEQA documentation shall be prepared that identifies specific measures that compensates for the loss of mineral resources.

Level of Significance After Mitigation: Less Than Significant

The implementation of Mitigation Measure **MR-1** would ensure that the proposed facilities associated with the OBMPU would not result in significant loss of mineral resources through either relocation, or compensation for development proposed to be located within an area containing significant mineral resources.

b. *Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?*

Project Category 1: Well Development and Monitoring Devices (PEs 1-9)
This Project Category includes the development of ASR, injection, pumping, groundwater level monitoring, and groundwater quality wells, associated well housing, as well as monitoring devices such as flow meters and extensometers. The proposed wells and monitoring devices will be installed throughout the Chino Basin.

As outlined in the preceding documentation for the OBMP, including the Peace II Draft SEIR and the original OBMP PEIR, the only significant mineral resources that occur within or near the project area are limestone, sand and gravel, crushed rock and rip rap. The location of these resources is primarily in the Jurupa and Pedley Hills, and also near the Santa Ana River. At the project specific level, the facilities associated with the OBMPU, such as wells, monitoring devices, and other facilities outlined in the remaining Project Categories may have a very small impact on mineral resources. Many of the new treatment facilities, wells, and conveyance facilities will be installed within the footprints of existing water utilities sites, or will otherwise be located within areas either already developed with residential, commercial, industrial or open space uses. Projects in these types of locations would have no potential to adversely impact mineral resources because the resources would already be covered with facilities that would make recovery unlikely, and because mineral resource recovery is generally not a compatible land use adjacent to residential, commercial. Facilities such as wells would not be large enough to interfere with locally important mineral resources recovery sites. As such, impacts would be less than significant.

Project Category 2: Conveyance Facilities and Ancillary Facilities (PEs 2, 4-9)
This category includes the construction of 550,000 LF of new pipelines, booster pump stations, reservoirs and minor appurtenances whose number. The proposed conveyance facilities and ancillary facilities would be implemented throughout the entire Chino Basin.

Impacts are the same as those identified under Project Category 1.

Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands (PEs 2, 4-5, 8/9)
This Project Category includes the construction of 310 acres of new storage basins—several locations for which are within existing facilities, improvements to existing storage basin(s), 200 acres of flood MAR facilities, new MS4-compliance facilities, and expansion of the maximum storage space (safe storage capacity) to be used within the Chino Basin from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af between this range of storage. The specific locations of the storage basins are described in the Project Description above; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

At the project specific level, the facilities associated with the OBMPU, such as storage basins and recharge facilities outlined in the remaining Project Categories may have a very small impact on mineral resources. Many of the new treatment facilities, wells, and conveyance facilities will be installed within the footprints of existing water utilities sites, or will otherwise be located within areas either already developed with residential, commercial, industrial or open space uses. The proposed storage basins will be located at sites that do not contain locally or regionally important mineral resources. However, the precise locations for the flood MAR facilities and new MS4-compliance facilities are presently unknown. Projects in these types of locations would have no potential to adversely impact mineral resources because the resources would already be covered with facilities that would make recovery unlikely, and because mineral resource recovery is generally not a compatible land use adjacent to residential, commercial. Facilities such as w flood MAR facilities and new MS4-compliance facilities would be large enough to interfere with locally important mineral resources recovery sites, should these facilities be located within such sites. As such, mitigation is required to minimize potential impacts below significance thresholds. Therefore, the installation and operation of OPBMPU facilities has little potential to have a direct adverse impact on mineral resources, unless the parcel(s) selected for such facilities are within an active mining area or are designated for recovery of mineral resources. Implementation of mitigation measure **MR-1** is sufficient to reduce the potential for impacts to mineral resources to a less than significant level.

The proposed expansion of the safe storage capacity from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward would not result in any visible above ground impacts beyond those facilities associated with the OBMPU designed to support this expansion as discussed herein. Increasing the safe yield of the Chino Basin, enhancing water quality through treatment and dilution and the provision of adequate waste treatment and reuse have no identifiable potential to cause or contribute to a transition of land with mineral resources to urban uses. As such, no impacts related to locally important mineral resources are anticipated to occur.

Project Category 4: Desalters and Water Treatment Facilities (PEs 2, 4-9)
The projects proposed under this category are: upgrades at IEUA's existing Treatment Plants (discussed in IEUA's 2017 FMP PEIR), a new advanced water treatment plant (discussed in IEUA's 2017 FMP PEIR), improvements to the WFA Agua de Lejos Treatment Plant, upgrades to the Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities. Seismic impacts related to the facilities thoroughly analyzed as part of the IEUA's 2017 FMP PEIR will not be analyzed further as part of this Initial Study.

Impacts are the same as those identified under Project Category 3.

Combined Project Categories

Level of Significance Before Mitigation: Potentially Significant

Mitigation Measures: Refer to MM **MR-1**, above.

Level of Significance After Mitigation: Less Than Significant

Implementation of mitigation measure **MR-1** is sufficient to reduce the potential for impacts to mineral resources to a less than significant level through either relocation, or compensation for development proposed to be located within an area containing significant mineral resources.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
XIII. NOISE: Would the project result in:				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of a project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☒	☐	☐
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☒	☐	☐
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☒	☐	☐

SUBSTANTIATION

XIII.1 Environmental Setting

Noise Rating Terminology
A-weighted decibels (dBA, a measure of sound energy) are the most common units used for measuring the loudness of a noise source/event. The human ear has different sensitivity to different frequencies of sound (noise). A-weighting is an attempt to give the noise monitor the same frequency sensitivity as the human ear. Technically, it is the measurement of the energy being received when listening to (or monitoring) a source of noise. For example, the loudness of a highway may be 65 dBA when measured 50 feet away. The sound decreases (less energy is received by the ear) as one moves away from the source, and the same highway would have a noise level of about 62 dBA at 100 feet. The relationship between how one perceives a sound and the actual sound energy emitted by the source of noise is very complex. However, a good rule of thumb is that if a noise increases 10 dBA, its apparent loudness will double. Therefore, a noise that is 70 dBA will appear twice as loud as a 60 dBA noise.

A number of noise rating scales using A-weighted decibels are used in California for land use compatibility assessment and are described as follows:

- The Equivalent Noise Level (Leq) scale represents the energy average noise level over a sample period of time. It represents the average decibel sound level that would contain the same amount of energy as a fluctuating sound level over the sample time period.
- The Day-Night Noise Level (Ldn) scale represents a time weighted 24-hour average noise level based on the A-weighted decibel scale. Time weighted refers to the fact that noise which occurs during certain sensitive time periods (such as at night) is penalized for occurring at these times. For the Ldn scale, the nighttime period (10 p.m. and 7 a.m.) noises are penalized by 10 dBA.
- The Community Noise Equivalent Level (CNEL) scale is similar to the Ldn scale except that it includes an additional 5 dBA penalty for the evening time period (7 p.m. to 10 p.m.). Both noise rating scales are used by the local jurisdictions and the State in evaluating transportation noise, including airports and roadways.

Noise Attenuation
Stationary point sources of noise, including stationary mobile sources such as idling vehicles, attenuate (lessen) at a rate between 6 dBA for hard sites and 7.5 dBA for soft sites for each doubling of distance from the reference measurement. Hard sites are those with a reflective surface between the source and the receiver such as parking lots or smooth bodies of water. No excess ground attenuation is assumed for hard sites and the changes in noise levels with distance (drop-off rate) is simply the geometric spreading of the noise

from the source. Soft sites have an absorptive ground surface such as soft dirt, grass or scattered bushes and trees. In addition to geometric spreading, an excess ground attenuation value of 1.5 dBA (per doubling distance) is normally assumed for soft sites. Line sources (such as traffic noise from vehicles) attenuate at a rate between 3 dBA for hard sites and 4.5 dBA for soft sites for each doubling of distance from the reference measurement (Caltrans, 2009).

Fundamentals of Vibration

Vibration is the periodic oscillation of a medium or object. The rumbling sound caused by vibration of room surfaces is called structure borne noises. Sources of groundborne vibrations include natural phenomena (e.g. earthquakes, volcanic eruptions, sea waves, landslides) or human-made causes (e.g. explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous or transient. Vibration is often described in units of velocity (inches per second), and discussed in decibel (VdB) units in order to compress the range of numbers required to describe vibration. Vibration impacts related to human development are generally associated with activities such as train operations, construction, and heavy truck movements.

The FTA assessment states that in contrast to airborne noise, ground-borne vibration is not a common environmental problem. Although the motion of the ground may be noticeable to people outside structures, without the effects associated with the shaking of a structure, the motion does not provoke the same adverse human reaction to people outside. Within structures, the effects of ground-borne vibration include noticeable movement of the building floors, rattling of windows, shaking of items on shelves or hanging on walls, and rumbling sounds. FTA assessment further states that it is unusual for vibration from sources such as buses and trucks to be perceptible, even in locations close to major roads. However, some common sources of vibration are trains, trucks on rough roads, and construction activities, such as blasting, pile driving, and heavy earth-moving equipment. The Federal Transit Association (FTA) guidelines identify a level of 80 VdB for sensitive land uses. This threshold provides a basis for determining the relative significance of potential Project related vibration impacts.

Sensitive Receptors

Some land uses are considered more sensitive to ambient noise levels than others because of the amount of noise exposure (in terms of both exposure duration and insulation from noise) and the types of activities typically involved. Residences, hotels, schools, day care centers, rest homes, and hospitals are generally more sensitive to noise than commercial and industrial land uses. There are numerous sensitive receptors throughout the Chino Basin and there is the potential for many sensitive receptors to be within 500 feet of OBMPU proposed facilities.

<u>Noise Standards and Criteria</u>

Noise rating scales, noise standards, community noise assessment criteria and noise mitigation measures are discussed below to provide a brief overview of how noise is evaluated and to explain the noise standards used in the Noise Elements Participating Jurisdiction's within the Project Area. This information is needed in order to understand the existing background noise conditions in the project area.

The CNEL scale is used as the criterion for assessing the compatibility of residential land uses with transportation-related noise sources by utilizing an interior and exterior noise standard. Typical noise standards within the local jurisdiction's general plans in the Chino Basin encourage interior noise standards of 45 dBA CNEL and an exterior standard of 60-65 dBA CNEL. The local jurisdictions use land use planning decisions relative to chronic noise exposure. An annual average noise level in excess of 60-65 dB CNEL is considered an excessive exterior exposure for most residential or other noise sensitive uses, unless mitigation is implemented to achieve this level where feasible. CNEL can be expressed as a daily average or as an annual average exposure to smooth out any day to day variations in noise generation.

Although CNEL is considered when using an annual average noise exposure such as along roadways or adjacent to airports, it is also calculated over a 24-hour period. Levels above 60-65 dB CNEL are considered intrusive for outdoor recreation, relaxation or normal conversation. Such intrusion could be considered an environmentally adverse impact even if no long-term noise incompatibility is created by the noise source. Environmental studies often use a change in the noise level by some given increment as a criterion for potential impact significance. A change of 3 dBA in noise from a semi-continuous source, such as a roadway, is often defined as a perceptible, but non-significant increase. Changes of 5 dBA are commonly designated as "clearly noticeable" and may be considered a significant change in the background noise level.

Sources of noise can be divided into transportation sources and non-transportation sources. The existing noise environment within the Chino Basin is dominated primarily by transportation-related noise sources. These noise sources include traffic noise from nearby roadways, from adjacent railroad lines and the several airports within the project area, including Cable Airport, Chino Airport, Ontario Airport, and Rialto Municipal Airport. Secondary non-transportation noise sources include industrial activity, mining, music, amplified sound and activities on private property. For example, existing industrial activity noise is audible around the California Steel Plant in Fontana in the vicinity of this site from normal operation. Regardless, the predominant noise sources are those transportation related activities. Noise thresholds applied by the various agencies located within the Chino Basin are, in and of themselves, cumulative impact thresholds. As such, a significant impact may occur if the noise thresholds of an agency are exceeded.

San Bernardino County Development Code

Noise. Section 83.01.080 of the County of San Bernardino Development Code establishes standards concerning acceptable noise levels for both noise sensitive land uses and for noise generating land uses.

C. Noise standards for stationary noise sources.

1. **Noise standards.** The following describes the noise standard for emanations from a stationary noise source, as it affects adjacent properties.

Table 83-2: Noise Standards for Stationary Sources

Affected Land Uses (Receiving Noise)	7 a.m. -10 p.m. Leq dB(A)	10 p.m. – 7 a.m. Leq dB(A)
Residential	55	45
Professional Services	55	55
Other Commercial	60	60
Industrial	70	70
SOURCE: San Bernardino County Development Code, Table 83-2, February 2009.		

2. **Noise limit categories.** No person shall operate or cause to be operated a source of sound at a location or allow the creation of noise on property owned, leased, occupied, or otherwise controlled by the person, which causes the noise level, when measured on another property, either incorporated or unincorporated, to exceed any one of the following:
   a. The noise standard for the receiving land use as specified in Subsection B (Noise impacted areas), above, for a cumulative period of more than 30 minutes in any hour.
   b. The noise standard plus 5 dB(A) for a cumulative period of more than 15 minutes in any hour.
   c. The noise standard plus 10 dB(A) for a cumulative period of more than five minutes in any hour.
   d. The noise standard plus 15 dB(A) for a cumulative period of more than one minute in any hour.
   e. The noise standard plus 20 dB(A) for any period of time.

D. Noise standards for adjacent mobile noise sources. Noise from mobile sources may affect adjacent properties adversely. When it does, the noise shall be mitigated for any new development to a level that shall not exceed the standards described in the following **Table**.

Table 83-3: Noise Standards for Adjacent Mobile Noise Sources

Land Use		LDN (or CNEL) dB(A)	
Categories	**Uses**	**Interior[1]**	**Exterior[2]**
Residential	Single and multi-family, duplex, mobile homes	45	60[3]
Commercial	Hotel, motel, transient housing	45	60[3]
	Commercial retail, bank, restaurant	50	N/A
	Office building, research and development, professional offices	45	65
	Amphitheater, concert hall, auditorium, movie theater	45	N/A
Institutional/Public	Hospital, nursing home, school classroom, religious institution, library	45	65
Open Space	Park	N/A	65

Notes:
(1) The indoor environment shall exclude bathrooms, kitchens, toilets, closets and corridors.
(2) The outdoor environment shall be limited to:
- Hospital/office building patios
- Hotel and motel recreation areas
- Mobile home parks
- Multi-family private patios or balconies
- Park picnic areas
- Private yard of single-family dwellings
- School playgrounds

(3) An exterior noise level of up to 65 dB(A) (or CNEL) shall be allowed provided exterior noise levels have been substantially mitigated through a reasonable application of the best available noise reduction technology, and interior noise exposure does not exceed 45 dB(A) (or CNEL) with windows and doors closed. Requiring that windows and doors remain closed to achieve an acceptable interior noise level shall necessitate the use of air conditioning or mechanical ventilation.
SOURCE: San Bernardino County Development Code, Table 83-3, February 2009.

E. **Increases in allowable noise levels.** If the measured ambient level exceeds any of the first four noise limit categories in Subsection (d)(2), above, the allowable noise exposure standard shall be increased to reflect the ambient noise level. If the ambient noise level exceeds the fifth noise limit category in Subsection (d)(2), above, the maximum allowable noise level under this category shall be increased to reflect the maximum ambient noise level.

F. **Reductions in allowable noise levels.** If the alleged offense consists entirely of impact noise or simple tone noise, each of the noise levels in Table 83-2 (Noise Standards for Stationary Noise Sources) shall be reduced by 5 dB(A).

G. **Exempt noise.** The following sources of noise shall be exempt from the regulations of this Section:
1. Motor vehicles not under the control of the commercial or industrial use.
2. Emergency equipment, vehicles, and devices.
3. Temporary construction, maintenance, repair, or demolition activities between 7:00 a.m. and 7:00 p.m., except Sundays and Federal holidays.

Vibration

A. **Vibration standard.** No ground vibration shall be allowed that can be felt without the aid of instruments at or beyond the lot line, nor shall any vibration be allowed which produces a particle velocity greater than or equal to two-tenths (0.2) inches per second measured at or beyond the lot line.

B. **Vibration measurement.** Vibration velocity shall be measured with a seismograph or other instrument capable of measuring and recording displacement and frequency, particle velocity, or acceleration. Readings shall be made at points of maximum vibration along any lot line next to a parcel within a residential, commercial and industrial land use zoning district.

C. **Exempt vibrations.** The following sources of vibration shall be exempt from the regulations of this Section.
1. Motor vehicles not under the control of the subject use.
2. Temporary construction, maintenance, repair, or demolition activities between 7:00 a.m. and 7:00 p.m., except Sundays and Federal holidays.

County of Riverside Code of Ordinances
The following are policies within the Code of Ordinances of the County of San Bernardino that may be applicable to program construction activities taking place within the County:

9.52.020 - Exemptions.
Sound emanating from the following sources is exempt from the provisions of this chapter:

A. Facilities owned or operated by or for a governmental agency;
B. Capital improvement projects of a governmental agency;

9.52.040 - General sound level standards.
No person shall create any sound, or allow the creation of any sound, on any property that causes the exterior sound level on any other occupied property to exceed the sound level standards set forth in Table 1.

TABLE 1. SOUND LEVEL STANDARDS (dB Lmax)

General Plan Foundation Component		Maximum Decibel Level		
Land Use Designation General Plan	Land Use Designation Name	Density	7:00 a.m.—10:00 p.m.	10:00 p.m.—7:00 a.m.
Community development				
EDR	Estate density residential	2 acres	55	45
VLDR	Very low-density residential	1 acre	55	45
LDR	Low-density residential	½ acre	55	45
MDR	Medium-density residential	2—5	55	45
MHDR	Medium high-density residential	5—8	55	45
HDR	High-density residential	8—14	55	45
VHDR	Very high-density residential	14—20	55	45
H'TDR	Highest density residential	20+	55	45
CR	Retail commercial		65	55
CO	Office commercial		65	55
CT	Tourist commercial		65	55
CC	Community center		65	55
LI	Light industrial		75	55
HI	Heavy industrial		75	75
BP	Business park		65	45
PF	Public facility		65	45
SP	Specific plan-residential		55	45
	Specific plan-commercial		65	55
	Specific plan-light industrial		75	55
	Specific plan-heavy industrial		75	75
Rural community				
EDR	Estate density residential	2 acres	55	45
VLDR	Very low-density residential	1 acre	55	45

General Plan Foundation Component			Maximum Decibel Level	
Land Use Designation General Plan	**Land Use Designation Name**	**Density**	**7:00 a.m.—10:00 p.m.**	**10:00 p.m.—7:00 a.m.**
LDR	Low-density residential	½ acre	55	45
Rural				
RR	Rural residential	5 acres	45	45
RM	Rural mountainous	10 acres	45	45
RD	Rural desert	10 acres	45	45
Agriculture				
AG	Agriculture	10 acres	45	45
Open space				
C	Conservation		45	45
CH	Conservation habitat		45	45
REC	Recreation		45	45
RUR	Rural	20 acres	45	45
W	Watershed		45	45
MR	Mineral resources		75	45

9.52.060 - Special sound sources standards.
The general sound level standards set forth in Section 9.52.040 of this chapter apply to sound emanating from all sources, including the following special sound sources, and the person creating, or allowing the creation of, the sound is subject to the requirements of that section. The following special sound sources are also subject to the following additional standards, the failure to comply with which constitutes separate violations of this chapter:

B. Power Tools and Equipment. No person shall operate any power tools or equipment between the hours of ten p.m. and eight a.m. such that the power tools or equipment are audible to the human ear inside an inhabited dwelling other than a dwelling in which the power tools or equipment may be located. No person shall operate any power tools or equipment at any other time such that the power tools or equipment are audible to the human ear at a distance greater than one hundred (100) feet from the power tools or equipment.

9.52.070 - Exceptions.
Exceptions may be requested from the standards set forth in Section 9.52.040 or 9.52.060 of this chapter and may be characterized as construction-related, single-event or continuous-events exceptions.

A. Application and Processing.

1. Construction-Related Exceptions. An application for a construction-related exception shall be made to and considered by the director of building and safety on forms provided by the building and safety department and shall be accompanied by the appropriate filing fee. No public hearing is required.

City of Chino Municipal Code
The following are policies within the Municipal Code of the City of Chino that may be applicable to program construction activities taking place within the City:

Chapter 9.40 Noise
9.40.030- Designated Noise Zones
The properties hereinafter described are assigned to the following noise zones:

- Noise Zone I: All single-, double- and multiple-family residential properties.
- Noise Zone II: All commercial properties.
- Noise Zone III: All manufacturing or industrial properties.
  (Ord. 95-10 § 1 (part), 1995.)

These criteria are given in terms of allowable noise levels for a given period of time at the residential property boundary. Higher noise levels are permitted during the day (seven a.m. to ten p.m.) than the night (ten p.m. to seven a.m.). The table below shows the acceptable levels at residential land uses during the daytime and nighttime.

Maximum Time of Exposure	Noise	Time Frame	
Metric	**Noise Level Not to Exceed**	**7 am -10 pm**	**10 pm -7am**
30 min/hr	L50	55 dBA	50 dBA
15 min/hr	L25	60 dBA	55 dBA
5 min/hr	L8.3	65 dBA	60 dBA
1 min/hr	L1.7	70 dBA	65 dBA
Any period of time	Lmax	75 dBA	70 dBA

9.40.060- Special Provisions

D. Noise sources associated with or vibration created by construction, repair, remodeling or grading of any real property or during authorized seismic surveys, provided said activities do not take place outside the hours for construction as defined in Section 15.44.030 of this code, and provided the noise standard of sixty-five dBA plus the limits specified in Section 9.40.040(B) as measured on residential property and any vibration created does not endanger the public health, welfare and safety

City of Chino Hills Municipal Code
The following are policies within the Municipal Code of the City of Chino Hills that may be applicable to program construction activities taking place within the City:

16.48.020 - Noise

B. Noise Standards.

1. The Noise standards contained in Table N-1 “Noise /Land Use Compatibility Matrix" in the Noise Element of the General Plan shall apply to land uses Citywide and shall be used to define acceptable and unacceptable Noise levels.
2. No person shall operate or cause to be operated any source of sound at any location or allow the creation of any Noise on property owned, leased, occupied or otherwise controlled by such person, which causes the Noise level, when measured on any other property, either incorporated or unincorporated, to exceed:
   a) The "Zone C" Noise standard for that receiving land use specified in Table N-1 of the General Plan Noise Element for a cumulative period of more than thirty (30) minutes in any hour; or
   b) The Noise standard plus 5 dBA for a cumulative period of more than five minutes in any hour; or
   c) The Noise standard plus 10 dBA for a cumulative period of more than five minutes in any hour; or
   d) The Noise standard plus 15 dBA for a cumulative period of more than one minute in any hour; or
   e) The Noise standard plus 20 dBA for any period of time.

Table 7.1: Land Use/Noise Compatibility Matrix

Land Use Categories		CNEL	
Categories	**Compatible Uses**	**Interior**	**Exterior**
Residential	Single-Family, Duplex, Multiple-Family	45	65
	Mobile Homes		65
Commercial	Hotel, Motel, Transient, Lodging	45	65
	Commercial, Retail, Bank, Restaurant, Health clubs	55	
	Office Buildings, Research and Development, Professional Offices	50	
	Amphitheater, Concert Hall, Auditorium, Meeting Hall, Movie Theater	45	
	Gym (multi-purpose)	50	
	Manufacturing, Warehousing, Wholesale, Utilities	65	
Open Space	Parks		65
Institutional/ Public Facility	Hospital, Schools, Classrooms	45	65
	Churches, Libraries	45	
SOURCE: City of Chino Hills, Noise Element, 2015			

City of Eastvale

The City of Eastvale has adopted the same ordinances outlined under the County of Riverside Code of Ordinances, above.

City of Fontana Municipal Code

The following are policies within the Municipal Code of the City of Fontana that may be applicable to program construction activities taking place within the City:

Sec. 30-259 – Performance Standards

(a) Noise levels. No person shall create or cause to be created any sound which exceeds the noise levels in this section as measured at the property line of any residentially zoned property:

(1) The noise level between 7:00 a.m. and 10:00 p.m. shall not exceed 65 db(A).

(2) The noise level between 10:00 p.m. and 7:00 a.m. shall not exceed 70 db(A).

(b) Noise measurements. Noise shall be measured with a sound level meter that meets the standards of the American National Standards Institute (ANSI) Section SI4-1979, Type 1 or Type 2. Noise levels shall be measured using the "A" weighted sound pressure level scale in decibels (reference pressure = 20 micronewtons per meter squared).

(c) Vibration. No person shall create or cause to be created any activity which causes a vibration which can be felt beyond the property line of any residentially zoned property with or without the aid of an instrument.

City of Jurupa Valley Municipal Code

The City of Jurupa Valley has adopted the same ordinances outlined under the County of Riverside Code of Ordinances, above.

City of Montclair Municipal Code

The following are policies within the Municipal Code of the City of Montclair that may be applicable to program construction activities taking place within the City:

6.12.040 - Base ambient exterior noise levels.

All ambient noise measurements shall commence at the base ambient noise levels in decibels within the respective times and zones as follows:

Zone	Time	Decibels
Residential	10:00 p.m.—7:00 am.	45 dB(A)
Residential	7:00 a.m.—10:00 p.m.	55 dB(A)
Commercial	10:00 p.m.—7:00 a.m.	55 dB(A)
Zone	**Time**	**Decibels**
Commercial	7:00 a.m.—10:00 p.m.	65 dB(A)
Industrial	10:00 p.m.—7:00 am.	60 dB(A)
Industrial	7:00 a.m.—10:00 p.m.	70 dB(A)

6.12.050 - Maximum residential/ nonresidential noise levels.
It is unlawful for any person within any zone to create any noise or allow the creation of any noise on the property owned, leased, occupied, or otherwise controlled by such person, which causes the noise level, when measured on the exterior of the property, to exceed the base ambient noise level as adjusted below:

Noise Level	Maximum Duration Period
Exceeded Level (BANL)	30 minutes in any hour
5—9 dB(A)	above BANL 15 minutes in any hour
10—14 dB(A)	above BANL 5 minutes in any hour
15—16 dB(A)	above BANL 1 minute in any hour
16 dB(A) or greater above BANL	Not permitted

6.12.060 - Exemptions.

D. Noise sources associated with construction, repair, remodeling or grading of any real property, provided said activities do not take place between the hours of 8:00 p.m. and 7:00 a.m. on any given day and provided that the Building Official determines that the public health and safety will not be impaired. Industrial or commercial construction or public improvements, not otherwise feasible except between these hours, may be approved on a limited, short-term basis, subject to the approval of the Director of Community Development. (Ord. 99-791 Exhibit A (part); prior code § 5-4.07)

City of Ontario Municipal Code
The following are policies within the Municipal Code of the City of Ontario that may be applicable to program construction activities taking place within the City:

Sec. 5-29.04. Exterior noise standards

(a) The following exterior noise standards, unless otherwise specifically indicated, shall apply to all properties within a designated noise zone.

Allowable Exterior Noise Level (1)		Allowed Equivalent Noise Level, Leq. (2)	
Noise Zone	**Type of Land Use**	**7 a.m. to 10 p.m.**	**10 p.m. to 7 a.m.**
I	Single-Family Residential	65 dBA	45 dBA
II	Multi-Family Residential, Mobile Home Parks	65 dBA	50 dBA
III	Commercial Property	65 dBA	60 dBA
IV	Residential Portion of Mixed Use	70 dBA	70 dBA
V	Manufacturing and Industrial, Other Uses	70 dBA	70 dBA

(1) If the ambient noise level exceeds the resulting standard, the ambient noise level shall be the standard.

(2) Measurements for compliance are made on the affected property pursuant to § 5-29.15.

(e) If the measurement location is on a boundary between two (2) different noise zones, the lower noise level standard applicable to the noise zone shall apply. (§ 2, Ord. 2888, eff. March 6, 2008)

Sec. 5-29.09. Construction activity noise regulations.

(a) No person, while engaged in construction, remodeling, digging, grading, demolition or any other related building activity, shall operate any tool, equipment or machine in a manner that produces loud noise that disturbs a person of normal sensitivity who works or resides in the vicinity, or a Police or Code Enforcement Officer, on any weekday except between the hours of 7:00 a.m. and 6:00 p.m. or on Saturday or Sunday between the hours of 9:00 a.m. and 6:00 p.m.

(b) No landowner, construction company owner, contractor, subcontractor, or employer shall permit or allow any person or persons working under their direction and control to operate any tool, equipment or machine in violation of the provisions of this section.

(c) Exceptions.

1. The provisions of this section shall not apply to emergency construction work performed by a private party when authorized by the City Manager or his or her designee;
2. The maintenance, repair or improvement of any public work or facility by public employees, by any person or persons acting pursuant to a public works contract, or by any person or persons performing such work or pursuant to the direction of, or on behalf of, any public agency; provided, however, this exception shall not apply to the City, or its employees, contractors or agents, unless:
   i. The City Manager or a department head determines that the maintenance, repair or improvement is immediately necessary to maintain public services,
   ii. The maintenance, repair or improvement is of a nature that cannot feasibly be conducted during normal business hours, or
   iii. The City Council has approved project specifications, contract provisions, or an environmental document that specifically authorizes construction during hours of the day that would otherwise be prohibited pursuant to this section; and
3. Any construction that complies with the noise limits specified in §§ 5-29.04 or 5-29.05. (§ 2, Ord. 2888, eff. March 6, 2008)

City of Rancho Cucamonga Municipal Code

The following are policies within the Municipal Code of the City of Rancho Cucamonga that may be applicable to program construction activities taking place within the City:

Sec. 17.66.050. - Noise standards.

C. Exterior noise standards.

1. It shall be unlawful for any person at any location within the city to create any noise or allow the creation of any noise on the property owned, leased, occupied, or otherwise controlled by such person, which causes the noise level when measured on the property line of any other property to exceed the basic noise level as adjusted below:
   a. Basic noise level for a cumulative period of not more than 15 minutes in any one hour; or
   b. Basic noise level plus five dBA for a cumulative period of not more than ten minutes in any one hour; or
   c. Basic noise level plus 14 dBA for a cumulative period of not more than five minutes in any one hour; or
   d. Basic noise level plus 15 dBA at any time.
2. If the measurement location is a boundary between two different noise zones, the lower noise level standard shall apply.

3. If the intruding noise source is continuous and cannot reasonably be discontinued or stopped for a time period whereby the ambient noise level can be determined, the measured noise level obtained while the noise is in operation shall be compared directly to the allowable noise level standards as specified respective to the measurement's location, designated land use, and for the time of day the noise level is measured. The reasonableness of temporarily discontinuing the noise generation by an intruding noise source shall be determined by the planning director for the purpose of establishing the existing ambient noise level at the measurement location.

D. Special Exclusions

4. Noise sources associated with, or vibration created by, construction, repair, remodeling, or grading of any real property or during authorized seismic surveys, provided said activities:
   a. When adjacent to a residential land use, school, church or similar type of use, the noise generating activity does not take place between the hours of 8:00 p.m. and 7:00 a.m. on weekdays, including Saturday, or at any time on Sunday or a national holiday, and provided noise levels created do not exceed the noise standard of 65 dBA when measured at the adjacent property line.
   b. When adjacent to a commercial or industrial use, the noise generating activity does not take place between the hours of 10:00 p.m. and 6:00 a.m. on weekdays, including Saturday and Sunday, and provided noise levels created do not exceed the noise standards of 70 dBA at the when measured at the adjacent property line.

F. Residential noise standards.

Table 17.66.050-1 Residential Noise Limits

Location of Measurement	Maximum Allowable	
	10:00 p.m. to 7:00 a.m.	7:00 a.m. to 10:00 p.m.
Exterior	60 dBA	65dBA
Interior	45 dBA	50dBA

City of Upland Municipal Code

The following are policies within the Municipal Code of the City of Upland that may be applicable to program construction activities taking place within the City:

9.40.040 Base ambient noise level.

All ambient noise measurements shall commence at the base ambient noise levels in decibels within the respective times and zones as follows:

Decibels	Time	Zone Use
45 dB(A)	10:00 p.m.—7:00 a.m.	Residential
55 dB(A)	7:00 a.m.—10:00 p.m.	Residential
65 dB(A)	Anytime	Uses not specified
75 dB(A)	Anytime	Industrial and commercial

Actual decibel measurements exceeding the above levels at the times and within the zones corresponding thereto shall be employed as the base ambient noise level referred to in this chapter. Otherwise, no ambient noise shall be deemed to be less than the above specified levels. (Prior code § 5400.500)

9.40.070 Maximum residential noise levels.
Exterior noise shall be measured on the exterior of any residential property, and no noise level shall exceed the following for the duration periods specified:

Noise Level Exceeded	Maximum Duration Period
Base ambient noise level (BANL)	30 minutes in any hour
5 dB(A) above BANL	15 minutes in any hour
10 dB(A) above BANL	5 minutes in any hour
15 dB(A) above BANL	1 minute in any hour
20 d(B)(A) above BANL	Not permitted

(Prior code § 5400.800)

Noise Criteria
The *CEQA Guidelines* do not define the levels at which permanent and temporary increases in ambient noise are considered "substantial." Therefore, with regard to determining whether the project would result in a permanent and/or temporary increase in ambient noise levels in the project vicinity, the significance of the proposed project's noise impacts can be determined by comparing estimated project-related noise levels to existing baseline (no-project) noise levels to assess the magnitude of increase in ambient noise levels. Generally speaking, the average healthy ear can barely perceive a noise level change of 3 dBA. A change from 3 to 5 dBA may be noticed by some individuals who are sensitive to changes in noise. A 5 dBA increase is readily noticeable, while the human ear perceives a 10 dBA increase as a doubling of sound. Thus, for the purpose of conducting a conservative analysis, an increase in the noise environment of 5 dBA or greater at an off-site sensitive receptor during project-related construction activities, which would be temporary and short-term, is considered to constitute a significant noise impact with regard to a temporary substantial increase in ambient noise levels.

With regard to determining noise impacts associated with permanent increases in ambient noise levels generated from project operations, some guidance as to the significance of changes in ambient noise levels is provided by the 1992 findings of the Federal Interagency Committee on Noise (FICON), which assessed the annoyance effects of changes in ambient noise levels resulting from aircraft operations. The recommendations are based upon studies that relate aircraft noise levels to the percentage of persons highly annoyed by the noise. Annoyance is a summary measure of the general adverse reaction of people to noise that generates speech interference, sleep disturbance, or interference with the desire for a tranquil environment. Although the FICON recommendations were specifically developed to assess aircraft noise impacts, it has been asserted that they are applicable to all sources of noise described in terms of cumulative noise exposure metrics such as the L_{dn}, as shown in **Table XIII-1**.

Table XIII-1
MEASURES OF SUBSTANTIAL INCREASE FOR NOISE EXPOSURE

Ambient Noise Level without Project (L_{dn})	Significant Impact Assumed to Occur if the Project Increases Ambient Noise Levels By:
<60 dB	+ 5.0 dB or more
60-65 dB	+ 3.0 dB or more
>65 dB	+ 1.5 dB or more
SOURCE: Federal Interagency Committee on Noise (FICON), 1992.	

Based on the noise criteria presented in **Table XIII-1**, the proposed program, would result in a significant operational noise impact if a mobile noise source (e.g., project-related traffic on local roadways) or stationary noise source (e.g., new treatment system, pump stations, etc.) associated with the program would result in increased noise levels of 1.5 dBA L_{dn} or more in an ambient noise environment greater than 65 dBA L_{dn}; or increased noise of 3 dBA L_{dn} or more in an ambient noise environment between 60 and 65 dBA L_{dn}; or increased noise of 5 dBA L_{dn} or more in an ambient environment of less than 60 dBA L_{dn}. The FICON thresholds are representative of noise increases from long-term (e.g., permanent) noise sources that could adversely affect sensitive receptors. The rationale for the **Table XIII-1** criteria is that as ambient noise levels increase, a small increase in decibel levels is sufficient to cause significant annoyance. The quieter the ambient noise level is, the more the noise can increase (in decibels) before it causes significant annoyance. Although an increase in the ambient noise environment may be significant based on the thresholds, if there are no sensitive receptors located in the vicinity of a project-related noise source that would be adversely impacted, then the noise would be deemed less than significant.

Vibration Criteria
The *CEQA Guidelines* also do not define the levels at which groundborne vibration or groundborne noises are considered "excessive." Thus, in terms of construction-related vibration impacts on buildings, the adopted guidelines/recommendations by the FTA to limit groundborne vibration based on the age and/or condition of the structures that are located in close proximity to construction activity are used in this analysis to evaluate potential groundborne vibration impacts. Based on the FTA criteria, construction impacts relative to groundborne vibration would be considered significant if any of the following were to occur:

- Project construction activities would cause a PPV groundborne vibration level to exceed 0.5 inches per second at a reinforced concrete, steel, or timber building;
- Project construction activities would cause a PPV groundborne vibration level to exceed 0.3 inches per second at any engineered concrete and masonry building;
- Project construction activities would cause a PPV groundborne vibration level to exceed 0.2 inches per second at any non-engineered timber and masonry buildings; or
- Project construction activities would cause a PPV ground-borne vibration level to exceed 0.12 inches per second at any buildings "extremely susceptible to vibration damage" (i.e., a historical building).

In terms of groundborne vibration impacts associated with human annoyance, this analysis uses the FTA's vibration impact thresholds for sensitive buildings, residences, and institutional land uses under conditions where there are an infrequent number of events per day. These thresholds are 65 VdB at buildings where vibration would interfere with interior operations, 80 VdB at residences and buildings where people normally sleep, and 83 VdB at other institutional buildings (FTA, 2006). The 65 VdB threshold applies to typical land uses where vibration would interfere with interior operations, including vibration-sensitive research and manufacturing facilities, hospitals with vibration-sensitive equipment, and university research operations. Vibration-sensitive equipment includes, but is not limited to, electron microscopes, high-resolution lithographic equipment, and normal optical microscopes. The 80 VdB threshold applies to all residential land uses and any buildings where people sleep, such as hotels and hospitals. The 83 VdB threshold applies to institutional land uses such as schools, churches, other institutions, and quiet offices that do not have vibration-sensitive equipment, but still have the potential for activity interference.

XIII.2 Impact Discussion

a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of a project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Implementation of the OBMPU would involve the installation of several new facilities related to the Program Elements. These facilities include wells, monitoring devices, conveyance pipelines, pump stations, reservoirs, storage basins, upgrades to treatment plants, new treatment plants, and new groundwater treatment facilities all within the Chino Basin.

The construction noise impacts associated with each individual OBMPU project would be short-term in length of time and limited to the period of time when construction activity is taking place for that particular upgrade or improvement. Construction activity noise levels at and near construction areas within the project area would fluctuate depending on the particular type, number, and duration of usage of various pieces of construction equipment. Certain facilities may require the use of heavy construction equipment for activities such as site preparation, grading and excavation, trenching, installation of piping and equipment, paving, and assembly of structural elements and mechanical systems. Development activities could also involve the use of smaller power tools, generators, and other sources of noise. During each stage of development for each individual project, there would be a different mix of equipment operating and noise levels would vary based on the amount and type of equipment in operation and the location of the activity. Specific construction equipment lists, material lists, construction methods, construction schedules, and workforce details would be developed in the future as specific projects are planned and designed according to the Program Elements outlined in the OBMPU.

The USEPA has compiled data for outdoor noise levels for typical construction activities. These data are presented in **Table XIII-2**. The noise levels shown in **Table XIII-2** represent composite noise levels associated with typical construction activities, which takes both the number of pieces and spacing of heavy construction equipment that are typically used during each phase of construction. These noise levels would diminish rapidly with distance from the construction site at a rate of approximately 6 dBA per doubling of distance. For example, a noise level of 84 dBA Leq measured at 50 feet from the noise source to the receptor would reduce to 78 dBA Leq at 100 feet from the source to the receptor, and reduce by another 6 dBA Leq to 72 dBA Leq at 200 feet from the source to the receptor. **Table XIII-3** shows typical maximum and average noise levels produced by various types of construction equipment.

Table XIII-2
TYPICAL OUTDOOR CONSTRUCTION NOISE LEVELS

Construction Phase	Noise Level (dBA, $_{Leq}$)[a]
Ground Clearing	84
Excavation	89
Foundations	78
Erection	85
Finishing	89

[a] Average noise levels correspond to a distance of 50 feet from the noisiest piece of equipment associated with a given phase of construction and 200 feet from the rest of the equipment associated with that phase.
SOURCE: USEPA, 1971.

The construction activities for each proposed OBMPU project could temporarily expose their respective existing off-site surrounding land uses to increased noise levels while construction activities are ongoing. As shown in **Table XIII-3**, excavation activities can typically generate noise levels of 89 dBA Leq at 50 feet from the construction noise source.

It should be noted that the construction noise impacts at existing off-site receptors would be dependent on various factors, including the amount of construction activity occurring on a given day, the distance between the construction activities and the off-site receptors, the presence of any existing structures that may act as noise barriers for the off-site receptors, and the existing ambient noise levels at the off-site receptor locations. Some of the construction activities associated with the proposed projects would also have relatively shorter durations and, consequently, less frequent noise impacts on nearby off-site uses. For instance, noise impacts from installation of new regional treatment facilities, would be of much longer duration than pipeline construction since the construction activities would physically progress along the length of the public right-of-way rather than remaining stationary at one location.

Table XII-3
NOISE LEVELS OF CONSTRUCTION EQUIPMENT AT
25, 50 AND 100 FEET (in dBA Leq) FROM THE SOURCE

Equipment	Noise Levels at 25 feet	Noise Levels at 50 feet	Noise Levels at 100 feet
Earthmoving			
Front Loader	85	79	73
Backhoes	86	80	74
Dozers	86	80	74
Tractors	86	80	74
Scrapers	91	85	79
Trucks	91	85	79
Material Handling			
Concrete Mixer	91	85	79
Concrete Pump	88	82	76
Crane	89	83	77
Derrick	94	88	82
Stationary Sources			
Pumps	82	79	70
Generator	84	78	72
Compressors	87	81	75
Other			
Saws	84	78	72
Vibrators	82	76	70

Source: U.S. Environmental Protection Agency "Noise"

<u>Project Category 1: Well Development and Monitoring Devices (PEs 1-9)</u>
This Project Category includes the development of ASR, injection, pumping, groundwater level monitoring, and groundwater quality wells, associated well housing, as well as monitoring devices such as flow meters and extensometers. The proposed wells and monitoring devices will be installed throughout the Chino Basin.

The installation of flow meters and extensometers would result in miniscule contributions to noise in the area through truck trips to each of the device installation points—the location for which are presently unknown. Additionally, on-going implementation of the OBMPU once the monitoring devices have been installed may require up to two truck trips to each device or surface water monitoring site per month. Noise exposure from the minimal truck trips required to implement the OBMPU would be below established standards for noise, and therefore, implementation of the flow meters associated with the OBMPU would have a less than significant potential to generate substantial temporary noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

Construction
Construction of the proposed wells would involve 24-hour drilling activities for varying lengths of time depending on the depth to which each well must be drilled. The proposed wells would be implemented throughout the entire Chino Basin.

Given the urbanized environment of much of the Chino Basin area, many of the projects would be constructed in proximity or adjacent to existing land uses, including those that are noise-sensitive uses.

Thus, the construction and drilling activities that would occur as a result of well development associated within the OBMPU would expose existing land uses located in proximity to the proposed wells to increased temporary and intermittent noise levels that are substantially greater than existing ambient noise levels. Because not all locations of the projects are determined at this time, the construction noise standards and/or regulations that would apply to each of the projects would depend on the agency with jurisdiction over each project location. Noise during construction, depending upon the final location of facilities, may exceed local construction noise standards or violate local construction noise regulations, particularly given the continuous nature of well drilling. As a result, mitigation to address noise generated by construction activities is provided below.

Operation
The proposed wells have the potential to generate some operational noise due to operation of the well pumps required to operate the proposed wells or associated pump station. Given the urbanized environment of much of the Chino Basin area, the proposed well development could operate in proximity or adjacent to existing noise-sensitive land uses, such as residential uses, schools, hospitals, etc. The operation of the proposed wells could potentially expose the adjacent sensitive receptors to noise levels that exceed local established exterior noise standards. It is anticipated that the proposed pumps and other noise generating equipment would be designed to meet local nighttime ambient noise standards through enclosing such facilities in structures that would control noise, such that local sensitive receptors would not experience a substantial increase in noise; this will be enforced through the implementation of mitigation measures provided below.

Project Category 2: Conveyance Facilities and Ancillary Facilities (PEs 2, 4-9)
This category includes the construction of 550,000 LF of new pipelines, booster pump stations, reservoirs and minor appurtenances whose number. The proposed conveyance facilities and ancillary facilities would be implemented throughout the entire Chino Basin.

Construction
Construction of conveyance and ancillary facilities would involve trenching for new pipelines and installation of supporting infrastructure to develop ancillary facilities such as reservoirs, booster pumps, etc. Construction of the proposed projects would occur intermittently over a 30-year horizon.

Given the urbanized environment of much of the Chino Basin area, many of the projects would be constructed in proximity or adjacent to existing land uses, including those that are noise-sensitive uses. In most cases, the construction of conveyance infrastructure along existing public rights-of-way would be located within 50 feet of nearby land uses, some of which may be sensitive land uses such as residences or churches. Thus, the construction activities that would occur as a result of implementation of facilities associated within the OBMPU would expose existing land uses located in proximity to the pipelines and ancillary facilities like pump stations to increased temporary and intermittent noise levels that are substantially greater than existing ambient noise levels. Because not all locations of the projects are determined at this time, the construction noise standards and/or regulations that would apply to each of the projects would depend on the agency with jurisdiction over each project location. Noise during construction, depending upon the final location of facilities, may exceed local construction noise standards or violate local construction noise regulations. As a result, mitigation to address noise generated by construction activities.

Operation
The proposed conveyance facilities proposed as part of the OBMPU would be located below ground and as such would not generate any operational noise. The aboveground facilities have the potential to generate some operational noise due to operation of mechanical equipment such as fans, pumps, air compressors, chillers, turbines, etc. Given the urbanized environment of much of the Chino Basin area, many of the aboveground facilities could operate in proximity or adjacent to existing noise-sensitive land uses, such as residential uses, schools, hospitals, etc. The operation of these facilities could potentially expose the adjacent sensitive receptors to noise levels that exceed local established exterior noise standards. Noise-generating equipment such as new above ground pump stations and other ancillary facilities must be designed to meet local nighttime ambient noise standards, such that local sensitive receptors would not

experience a substantial increase in noise, this will be enforced through the implementation of mitigation measures provided below.

Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands (PEs 2, 4-5, 8/9)
This Project Category includes the construction of 310 acres of new storage basins—several locations for which are within existing facilities, improvements to existing storage basin(s), 200 acres of flood MAR facilities, new MS4-compliance facilities, and expansion of the maximum storage space (safe storage capacity) to be used within the Chino Basin from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af between this range of storage. The specific locations of the storage basins are described in the Project Description above; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

Construction
Impacts would be the same as Project Categories 1 & 2.

Operation
Impacts would be the same as Project Categories 1 & 2.

The proposed expansion of the safe storage capacity from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward would not result in any noise generating impacts other than the facilities discussed in the preceding text which are intended to support this expansion. As such, no impacts to noise can occur.

Project Category 4: Desalters and Water Treatment Facilities (PEs 2, 4-9)
The projects proposed under this category are: upgrades at IEUA's existing Treatment Plants (discussed in IEUA's 2017 FMP PEIR), a new advanced water treatment plant (discussed in IEUA's 2017 FMP PEIR), improvements to the WFA Agua de Lejos Treatment Plant, upgrades to the Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities. The noise impacts related to the facilities thoroughly analyzed as part of the IEUA's 2017 FMP PEIR, and will not be analyzed further as part of this Initial Study.

Construction
Upgrades and improvements to existing facilities (WFA Agua de Lejos Treatment Plant, Chino Desalters, and existing groundwater treatment facilities) would occur within developed sites already containing desalter or water treatment facilities. Sensitive receptors are within 100 feet of the WFA Agua de Lejos Treatment Plant, while they are far removed from the easternmost of the Chino Desalters because it is surrounded by industrial and commercial uses. The westernmost Chino Desalter is also far removed from the nearest sensitive receptor as it is located less than a half-mile from the Chino Airport and is surrounded by industrial and agricultural uses. The proposed upgrades and improvements to existing facilities would result in construction activities that could expose existing land uses located in proximity to the proposed projects to increased temporary and intermittent noise levels that are substantially greater than existing ambient noise levels. The construction noise standards and/or regulations that would apply to existing facilities are the Cities of Upland, Jurupa Valley, and Chino. Noise during construction of treatment facilities may exceed local construction noise standards or violate local construction noise regulations; however, it is likely that construction at the Chino Desalters would not violate local construction noise standards due to the distance from these facilities to the nearest sensitive receptors. Impacts related to construction noise at the Agua de Lejos Treatment Plant, as well as impacts related to construction noise at new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities at would be the same as Project Categories 1, 2, & 3 due to the Plant's close proximity to sensitive receptors.

Operation
Once construction of the proposed treatment facility upgrades at each facility has been completed, the surrounding off-site land uses would be exposed to operational noise levels generated by the new aboveground facilities. Treatment facilities have the potential to generate the most operational noise due

to operation of heating, ventilating, and air conditioning (HVAC) equipment and other mechanical equipment such as fans, pumps, air compressors, chillers, turbines, etc. However, the new facilities would be designed to meet acoustic performance criteria that would comply with the local ambient noise standards at the facility fence-line for a stationary noise source, which will be enforced through mitigation.

For new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities, there is a potential for operational noise to exceed established standards, particularly given that the precise locations of these facilities are unknown. As such, operational impacts would be that same as Project Categories 1 & 2.

Combined Project Categories

Level of Significance Before Mitigation: Potentially Significant

Mitigation Measures:

NOI-1: ***The Watermaster and/or Implementing Agency shall implement the following measures during construction:***

- ***Include design measures where feasible to reduce the construction noise levels if necessary to comply with local noise ordinances. These measures may include, but are not limited to, the erection of noise barriers/curtains, use of advanced or state-of-the-art mufflers on construction equipment, and/or reduction in the amount of equipment that would operate concurrently at the construction site.***
- ***Place noise and groundborne vibration-generating construction activities whose specific location on a construction site may be flexible (e.g., operation of compressors and generators, cement mixing, general truck idling) as far as possible from the nearest noise- and vibration-sensitive land uses such as residences, schools, and hospitals.***
- ***Minimize the effects of equipment with the greatest peak noise generation potential via shrouding or shielding to the extent feasible. Examples include the use of drills, pavement breakers, and jackhammers.***
- ***Locate stationary construction noise sources as far from adjacent noise-sensitive receptors as possible, and require that these noise sources be muffled and enclosed within temporary sheds, insulation barriers if necessary to comply with local noise ordinances.***
- ***Provide noise shielding and muffling devices on construction equipment per the manufacturer's specifications.***
- ***If construction is to occur near a school, the construction contractor shall coordinate the with school administration in order to limit disturbance to the campus. Efforts to limit construction activities to non-school days shall be encouraged.***
- ***For major construction projects, identify a liaison for surrounding residents and property owners to contact with concerns regarding construction noise and vibration. The liaison's telephone number(s) shall be prominently displayed at construction locations.***
- ***For major construction projects, notify in writing all landowners and occupants of properties adjacent to the construction area of the anticipated construction schedule at least two weeks prior to groundbreaking.***
- ***Construction activities shall occur within the hours considered to be acceptable for construction by the applicable jurisdiction within which an individual project is constructed, except for activities, such as well drilling which are continuous, and for emergencies. Where no such restrictions are in place that limit hours of construction, construction shall be limited to the hours of 7 AM and 6 PM on weekdays, 8 AM and 5 PM on Saturdays, and at no time shall construction activities occur on Sundays or holidays, unless a declared emergency exists.***

NOI-2: ***The Watermaster and/or Implementing Agency shall require that all OBMPU-related aboveground facilities that include stationary noise generating equipment (such as emergency generators, blowers, pumps, motors, etc.) to minimize their audible noise levels by locating equipment away from noise-sensitive receptor areas, installing proper acoustical shielding for the equipment, and incorporating the use of parapets into building design to meet the applicable City or County noise level requirements at neighboring property lines.***

NOI-3: ***For construction activities during non-standard working hours or hours that are not exempt from compliance with applicable City or County noise ordinances (e.g., 24-hour well drilling), the Watermaster and/or Implementing Agency will secure a noise waiver from the appropriate jurisdiction if available.***

NOI-4: ***Injection and extraction wells shall be located as far from sensitive receptors as feasible. If new wells are to be constructed in the immediate vicinity of sensitive receptors, construction specification requirements shall include installation and maintenance of a temporary noise barrier (e.g. engineered sound wall or noise blanket) during 24-hour construction activities, to the extent feasible if necessary to comply with local noise ordinances. Specifications shall include use of appropriate materials that shall be installed to a height that intercepts the line of sight between the construction site and sensitive receptors in order to achieve maximum attenuation in an attempt to decrease construction area noise to as close as ambient noise levels as possible. Furthermore, where new wells are located adjacent to sensitive receptors, wells and any other associated noise generating facilities (i.e. associated treatment facilities, pumps, generators, etc.) shall be enclosed within a structure to attenuate noise to an acceptable level at the nearest sensitive receptor.***

Level of Significance After Mitigation: Less Than Significant

Mitigation measure **NOI-1** would require the following: all construction activities to be conducted in accordance with the applicable noise regulations and standards, the implementation of noise reduction devices and techniques during construction activities, limits construction hours, and advance notification of the surrounding noise-sensitive receptors to a construction site about upcoming construction activities and their hours of operation. This measure is anticipated to reduce the construction-related noise levels at nearby receptors to the maximum extent feasible, which is anticipated to be sufficient for the types of projects proposed as part of the OBMPU. Mitigation measure **NOI-2** will ensure that operational noise meets the applicable City or County noise level requirement, which will ensure that noise generating operational features at the proposed OBMPU facilities attenuate noise to a less than significant level. Mitigation Measure **NOI-3** ensure that construction activities outside of standard working hours secure a noise waiver, which will minimize conflicts with the applicable noise standards. Mitigation measure **NOI-4** will enforce noise minimizing techniques that will ensure that the proposed well developments will not result in excessive operation or construction related noise.

b. Generation of excessive groundborne vibration or groundborne noise levels?

Construction of the OBMPU projects would include activities such as grading, excavation, and drilling, which would have the potential to generate low levels of groundborne vibration. Persons residing and working in an area located in proximity to a construction site could be exposed to excessive groundborne vibration or groundborne noise levels related to construction activities. The results from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibrations at moderate levels, to slight structural damage at the highest levels. Site ground vibrations from construction activities very rarely reach the levels that can damage structures, but they can be perceived in the detectable range and be felt in buildings very close to a construction site.

Project Category 1: Well Development and Monitoring Devices (PEs 1-9)
This Project Category includes the development of ASR, injection, pumping, groundwater level monitoring, and groundwater quality wells, associated well housing, as well as monitoring devices such as flow meters and extensometers. The proposed wells and monitoring devices will be installed throughout the Chino Basin.

The installation of flow meters and extensometers would result in miniscule contributions to vibration in the area through truck trips to each of the device installation points—the location for which are presently unknown. Additionally, on-going implementation of the OBMPU once the monitoring devices have been installed may require up to two truck trips to each device or surface water monitoring site per month. Vibration exposure from the minimal truck trips required to implement the OBMPU would be well below established standards for vibration, and therefore, implementation of the flow meters associated with the OBMPU would have a less than significant potential to generate excessive groundborne vibration or groundborne noise.

Construction
As previously stated, the locations for the proposed wells are presently unknown. As such, there is a potential that the proposed wells could be located in close proximity to sensitive receptors. Construction of the proposed wells would involve 24-hour drilling activities for varying lengths of time depending on the depth in which each well must be drilled. The proposed wells would be implemented throughout the entire Chino Basin. Given the urbanized environment of much of the Chino Basin area, construction of a new well may have some potential to create vibration at the nearest sensitive receptor to a given well development site. Well drilling activities are anticipated to attenuate at the nearest sensitive receptor, however mitigation is provided below to minimize vibration to the greatest extent feasible. If removal of pavement is required, some jackhammer and loader activities may be necessary, but these activities do not typically generate enough vibration energy to adversely impact adjacent structures. Based on the type of equipment and construction activities required to install a well, the vibration impacts are forecast to be less than significant with implementation mitigation.

Operation
The proposed wells have a less than significant potential to generate operational vibration. Operational vibration is anticipated to be less than significant given that there are no large pieces of heavy machinery that would be required to operate the proposed wells.

Project Category 2: Conveyance Facilities and Ancillary Facilities (PEs 2, 4-9)
This category includes the construction of 550,000 LF of new pipelines, booster pump stations, reservoirs and minor appurtenances whose number. The proposed conveyance facilities and ancillary facilities would be implemented throughout the entire Chino Basin.

Construction
Construction activities required for the proposed conveyance systems and ancillary facilities projects would have the potential to impact their respective nearby sensitive receptors. Given the urbanized environment of the Chino Basin, the potential exists for construction of a specific project to be located within 25 feet of an adjacent land use. Consequently, existing off-site receptors that are located immediately adjacent to a construction site could be exposed to excessive groundborne vibration levels. It is anticipated that construction of the proposed projects would employ conventional techniques and the equipment to be used would typically not cause excessive ground-borne vibration. The installation of pipelines could also require jack and bore construction, depending on the local geology and location of the OBMPU projects, which can result in vibration levels similar to well drilling operations. Where potential adjacent receptors are located less than 25 feet from a construction site that employs drilling, the vibration levels experienced by these receptors would be even greater.

As the specific locations for the proposed pump stations, reservoirs and other ancillary facilities are presently unknown, and given the short-term nature of construction events, it is anticipated that there would be an infrequent amount of vibration events per day at sensitive land use receptors resulting from project-related construction activities. However, depending on how close an actual receptor location is to a construction site, and the type of building the receptor, it is possible that the vibration levels at a receptor location could exceed the FTA's vibration thresholds for building damage and human annoyance. As such, vibration impacts during construction associated with the proposed project on existing nearby receptors would require mitigation.

Operation
The proposed conveyance and ancillary facilities have a less than significant potential to generate operational vibration. Operational vibration is anticipated to be less than significant given that there are no large pieces of heavy machinery that would be required to operate the ancillary and conveyance facilities.

Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands (PEs 2, 4-5, 8/9)
This Project Category includes the construction of 310 acres of new storage basins—several locations for which are within existing facilities, improvements to existing storage basin(s), 200 acres of flood MAR facilities, new MS4-compliance facilities, and expansion of the maximum storage space (safe storage capacity) to be used within the Chino Basin from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af between this range of storage. The specific locations of the storage basins are described in the Project Description above; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

Construction
Construction activities required for the proposed storage basins and recharge facilities would have the potential to impact their respective nearby sensitive receptors. Given the urbanized environment of the Chino Basin, the potential exists for construction of a specific project to be located within a perceptible distance to the nearest sensitive receptor. Construction of new storage basins would require substantial earth moving activities that would result in groundborne vibration, and as stated above, could affect the nearest sensitive land use. Therefore, as discussed under Project Categories 1 and 2, construction impacts would require mitigation to minimize vibration impacts. Impacts would be the same as Project Category 2.

Operation
The proposed storage basins and recharge facilities would have a less than significant potential to generate operational vibration. Operational vibration is anticipated to be less than significant given that there are no large pieces of heavy machinery that would be required to operate the storage basins and recharge facilities.

The proposed expansion of the safe storage capacity from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward would not result in any visible above ground impacts other than the facilities discussed in the preceding text which are intended to support this expansion. As such, no vibration related impacts can occur.

Project Category 4: Desalters and Water Treatment Facilities (PEs 2, 4-9)
The projects proposed under this category are: upgrades at IEUA's existing Treatment Plants (discussed in IEUA's 2017 FMP PEIR), a new advanced water treatment plant (discussed in IEUA's 2017 FMP PEIR), improvements to the WFA Agua de Lejos Treatment Plant, upgrades to the Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities. The noise impacts related to the facilities thoroughly analyzed as part of the IEUA's 2017 FMP PEIR, and will not be analyzed further as part of this Initial Study.

Construction
Upgrades and improvements to existing facilities (WFA Agua de Lejos Treatment Plant, Chino Desalters, and existing groundwater treatment facilities) would occur within developed sites already containing desalter or water treatment facilities. Sensitive receptors are within 100 feet of the boundary of WFA Agua de Lejos Treatment Plant, while they are far removed from the easternmost of the Chino Desalters because it is surrounded by industrial and commercial uses. The westernmost Chino Desalter is also far removed from the nearest sensitive receptor as it is located less than a half-mile from the Chino Airport and is surrounded by industrial and agricultural uses. The proposed upgrades and improvements to existing

facilities would result in construction activities that could expose existing land uses located in proximity to the proposed projects to excessive vibration. The construction vibration standards and/or regulations that would apply to existing facilities are the Cities of Upland, Jurupa Valley, and Chino. Vibration during construction of treatment facilities may exceed local standards or violate local construction regulations governing vibration; however, construction at the Chino Desalters would not violate local construction vibration standards due to the distance from these facilities to the nearest sensitive receptors. Impacts related to construction-related vibration at the Agua de Lejos Treatment Plant, as well as impacts related to construction-related vibration at new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities at would be the same as Project Categories 1, 2, & 3 due to the Plant's close proximity to sensitive receptors.

Operation
The proposed improvements to the WFA Agua de Lejos Treatment Plant, upgrades to the Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities would have a less than significant potential to generate operational vibration. Operational vibration is anticipated to be less than significant given that there are no large pieces of heavy machinery that would be required to operate these facilities.

<u>Combined Project Categories</u>

Level of Significance Before Mitigation: Potentially Significant

Mitigation Measures:

NOI-5: ***The Watermaster and/or Implementing Agency shall require the construction contractor(s) to implement the following measure:***

- ***Ensure that the operation of construction equipment that generates high levels of vibration including, but not limited to, large bulldozers, loaded trucks, pile-drivers, vibratory compactors, and drilling rigs, is minimized within 45 feet of existing residential structures and 35 feet of institutional structures (e.g., schools) during construction of the various OBMPU projects. Use of small rubber-tired bulldozers shall be enforced within these areas during grading operations to reduce vibration effects.***
- ***The construction contractor for any individual OBMPU project shall provide signs along the roadway identifying a phone number for adjacent property owners to contact with any complaint. During future construction activities for any individual OBMPU project with heavy equipment within 300 feet of occupied residences, vibration field tests shall be conducted at the property line near the nearest occupied residences. To the extent feasible, if vibrations exceed 72 VdB, the construction activities shall be revised to reduce vibration below this threshold. These measures may include, but are not limited to the following: use different construction methods, slow down construction activity, or other mitigating measures to reduce vibration at the property from where the complaint was received.***

NOI-6: ***Where an OBMPU project would be constructed adjacent to an existing or potential historic building, the Watermaster and/or Implementing Agency shall require, through contract specifications, a certified structural engineer to be retained to submit evidence that the operation of vibration-generating equipment associated with the construction activities would not result in any structural damage to the adjacent historic building. Contract specifications shall be included in the construction documents for the applicable OBMPU project development.***

Level of Significance After Mitigation: Less Than Significant

Implementation of Mitigation Measure **NOI-5** would discourage the use of construction equipment that generates high levels of vibration within specific distances from existing land uses that are located near active construction areas and would ensure vibration field testing and subsequent minimization near occupied residences. This will reduce the construction-related vibration levels experienced by these existing off-site land uses to a level of less than significant. Additionally, implementation of Mitigation Measure **NOI-6** would serve to ensure the safety of existing historic buildings by requiring a certified structural engineer to analyze and provide evidence that no structural damage would result at these buildings due to the project's construction activities. Although construction related vibration could be experienced for some specific locations, impacts would be limited in scope and scale and substantially avoided or minimized with implementation of the Mitigation Measures **NOI-5** and **NOI-6**; therefore, vibration impacts would be less than significant with mitigation.

c. *For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?*

The following three airports are located within Chino Basin's boundaries: Chino Airport, LA/Ontario International Airport, and Cable Airport in Upland. There are no private airstrips located within the Chino Basin.

<u>Project Category 1: Well Development and Monitoring Devices (PEs 1-9)</u>
This Project Category includes the development of ASR, injection, pumping, groundwater level monitoring, and groundwater quality wells, associated well housing, as well as monitoring devices such as flow meters and extensometers. The proposed wells and monitoring devices will be installed throughout the Chino Basin; however, the location for these facilities are presently unknown. Given that there are several airports located within the Chino Basin, it is possible that wells and monitoring devices may be installed within 2 miles of an airport. It is not anticipated that any employees would be located at a given well site full time; maintenance and inspection of the proposed wells and monitoring devices would be minimal during project operations. However, it is possible that, during construction of proposed wells and visits to a well or monitoring device site that is located within 2 miles of an airport, employees could be exposed to excessive noise. Therefore, mitigation is provided below to ensure that any exposure to excessive noise is minimized.

<u>Project Category 2: Conveyance Facilities and Ancillary Facilities (PEs 2, 4-9)</u>
This category includes the construction of 550,000 LF of new pipelines, booster pump stations, reservoirs and minor appurtenances whose number. The proposed conveyance facilities and ancillary facilities would be implemented throughout the entire Chino Basin. Proposed pipelines, pump stations, reservoirs, or other ancillary facilities could be constructed and operated within 2 miles of an airport. As with the proposed well development and monitoring devices under Project Category 1 above, these facilities would not require any employees would be located at a given site full time; maintenance and inspection of the proposed conveyance and ancillary facilities would be minimal during project operations. However, in order to protect employees visiting a site near an airport, mitigation is provided to below that would minimize exposure to excessive airport noise.

<u>Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands (PEs 2, 4-5, 8/9)</u>
This Project Category includes the construction of 310 acres of new storage basins—several locations for which are within existing facilities, improvements to existing storage basin(s), 200 acres of flood MAR facilities, new MS4-compliance facilities, and expansion of the maximum storage space (safe storage capacity) to be used within the Chino Basin from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af between this range of storage. The specific locations of the storage basins are described in the Project Description above; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

The following locations for proposed storage basins are located within 2 miles of an airport: Mills Pond (Chino Airport); and, Chino Institute for Men (directly adjacent to Chino Airport). The following locations for proposed storage basins are located more than 2 miles from an airport: Lower Cucamonga (more than 2 miles from Chino Airport and more than 3 miles from Ontario International Airport); Confluence Project (greater than 5 miles from the Chino Airport); Riverside Basin (greater than 2 miles from the Ontario

International Airport); Jurupa Basin (more than 3 miles from the Ontario International Airport); and Vulcan Basin (greater than 7 miles from the Ontario International Airport). During construction and operation at Mills Pond and the Chino Institute for Men storage basins, there is a potential for employees working at, visiting or maintaining the site to be exposed to excessive noise from nearby airports. The remaining facilities would have no potential to be exposed to excessive airport-related noise, given the distance from these proposed storage basins to the nearest airport. In order to protect employees visiting Mills Pond or the Chino Institute for Men storage basins, mitigation is provided below that would minimize exposure to excessive airport noise.

The proposed expansion of the safe storage capacity from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward would not result in any visible above ground impacts other than the facilities discussed in the preceding text which are intended to support this expansion. As such, no impacts related to airport noise can occur.

Project Category 4: Desalters and Water Treatment Facilities (PEs 2, 4-9)
The projects proposed under this category are: upgrades at IEUA's existing Treatment Plants (discussed in IEUA's 2017 FMP PEIR), a new advanced water treatment plant (discussed in IEUA's 2017 FMP PEIR), improvements to the WFA Agua de Lejos Treatment Plant, upgrades to the Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities. The noise impacts related to the facilities thoroughly analyzed as part of the IEUA's 2017 FMP PEIR, and will not be analyzed further as part of this Initial Study.

The WFA Agua de Lejos Treatment Plant, and the westernmost Chino Desalter are located within 2 miles of an airport. The Agua de Lejos Treatment Plant is located less than one mile from Cable Airport; the westernmost Chino Desalter is located adjacent to Chino Airport. The easternmost Chino Desalter is located more than 4 miles from the Ontario International Airport. During construction and operation at the WFA Agua de Lejos Treatment Plant, and the westernmost Chino Desalter, there is a potential for full-time employees working at, visiting or maintaining the site to be exposed to excessive noise from nearby airports. The easternmost Chino Desalter would have no potential to be exposed to excessive airport-related noise, given the distance from these proposed storage basins to the nearest airport. In order to protect employees at the WFA Agua de Lejos Treatment Plant, and the westernmost Chino Desalter, mitigation is provided below that would minimize exposure to excessive airport noise. Impacts related to excessive airport noise at new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities at would be the same as Project Categories 1, 2, & 3 because the locations of these facilities are presently unknown, and may be within 2 miles of an airport.

Combined Project Categories

Level of Significance Before Mitigation: Potentially Significant

Mitigation Measures:

NOI-7: ***Where an OBMPU project would be constructed within 2 miles of a public airport, any new indoor facilities should be retrofitted to minimize noise to a level that is within OSHA's permissible exposure limit (PEL).[42] Employees working outside at an OBMPU project, either during construction or operation, shall be provided with ear protection to minimize noise to a level that is below OSHA's PEL to be utilized during periods of excessive noise caused by any aircraft overflights.***

Level of Significance After Mitigation: Less Than Significant

Mitigation measure **NOI-7** would ensure that projects located in close proximity to the airport would minimize exposure of persons working at or visiting a site to excessive noise levels. Given that noise attenuates at a rate between 6 dBA for hard sites and 7.5 dBA for soft sites for each doubling of distance from the reference

[42] https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.95

measurement, it is anticipated that excessive noise generated by nearby airports will not result in significant impacts to persons working or residing in the vicinity of the proposed OBMPU projects.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
XIV. POPULATION AND HOUSING: Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☒	☐	☐

SUBSTANTIATION

XIV.1 Environmental Setting

As previously stated, the Chino Basin is one of the largest groundwater basins in Southern California and has an estimated unused storage capacity of over 1,000,000 acre-feet. The Chino Basin covers approximately 235 square miles within the Upper Santa Ana River Watershed and lies within portions of San Bernardino, Riverside, and Los Angeles counties. Exhibit 1 shows the location of the Chino Basin within the Upper Santa Ana River Watershed. The Chino Basin includes the following incorporated cities: Chino, Chino Hills, Eastvale, Fontana, Jurupa Valley, Montclair, Ontario, Pomona, Rancho Cucamonga, and Upland. The Basin includes limited areas of unincorporated Riverside and San Bernardino Counties.

Introduction: Regional Population & Housing

The Southern California Association of Governments (SCAG) forecasts three major growth indicators including population, households, and employment. These forecasts are provided in the regional transportation plans that are periodically updated by SCAG. The SCAG Local Profiles for each of the Cities (excluding unincorporated populations within the Counties) amounts to an estimated population within Chino Basin of 1,180,190 persons in 2018. It is assumed that the projected population of the San Bernardino County and Riverside County unincorporated areas within Chino Basin was 99,903 persons in 2010 when the US Census was taken.[43,44] The unincorporated Riverside County population within Chino Basin was 0.0028%[45] of the overall unincorporated Riverside County population in 2010, while the unincorporated San Bernardino County population within Chino Basin was 26.67%[46] of the overall unincorporated San Bernardino County population in 2010. In order to determine the 2018 unincorporated Riverside and San Bernardino County population within Chino Basin, these percentages were multiplied by the current SCAG Local Profile projections for each County. As such the projected population of the San Bernardino County and Riverside County unincorporated areas within Chino Basin was 83,130 persons in 2018.[47] Therefore, the approximate population within Chino Basin was 1,263,320 persons in 2018. This calculation varies slightly from the population data contained in the Project Description; however, the population data provided within this Chapter reflects research efforts to determine what portions of the Unincorporated areas of Riverside and San Bernardino Counties are located within the Basin, and furthermore, reflects the

[43] https://statisticalatlas.com/county-subdivision/California/San-Bernardino-County/San-Bernardino/Population#data-map/tract
[44] https://statisticalatlas.com/county-subdivision/California/Riverside-County/Jurupa/Population#figure/county-subdivision-in-riverside-area
[45] https://www.rivcoeda.org/Portals/0/BRG-PDFs/2.%20Demographics.pdf
[46] https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=CF
[47] https://www.scag.ca.gov/DataAndTools/Pages/LocalProfiles.aspx

population within the general areas in which OBMPU facilities are proposed to be developed. **Table XIV-1** below outlines the population projected by the SCAG 2016-2040 Regional Transportation Plan / Sustainable Communities Strategy (RTP/SCS) within Chino Basin. The SCAG 2016-2040 RTP/SCS is a tool used as a guide for developing regional plans and strategies mandated by the federal and state governments.

Table XIV-1
SCAG POPULATION FORECAST

Cities/Counties	2018	2040
Chino	86,757	120,400
Chino Hills	83,159	94,900
Eastvale	64,854	65,400
Fontana	212,000	280,900
Jurupa Valley	106,054	114,500
Montclair	40,402	42,700
Ontario	177,589	258,600
Pomona	155,687	190,400
Rancho Cucamonga	176,671	204,300
Upland	77,017	81,700
Unincorporated Riverside County*	11	14
Unincorporated San Bernardino County*	83,119	91,772
TOTALS	1,263,320	1,546,086

Source: SCAG Local Profiles, 2019, https://www.scag.ca.gov/DataAndTools/Pages/LocalProfiles.aspx
SCAG 2016 RTP SCS Demographics and Growth Forecast
*within Chino Basin as discussed in the Introduction above.

Along with the projected population increases, there will be a corresponding increase in the estimated number of dwelling units within the project area. Based upon information contained within the SCAG 2016-2040 RTP/SCS, the estimated number of households in 2040 and 2012 are outlined below. By 2040, the number of households is anticipated to be approximately 981,989 dwelling units. **Table XIV-2** summarizes the expected dwelling units for the affected agencies based upon general plan data.

Table XIV-2
SCAG HOUSEHOLD FORECAST

Cities/Counties	2012	2040	Housing % increase 2018-2040
Chino	21,000	34,000	61.9%
Chino Hills	23,000	28,300	23.0%
Eastvale	14,100	16,500	17.0%
Fontana	49,600	74,000	49.2%
Jurupa Valley	25,000	30,400	21.6%
Montclair	9,600	11,600	20.8%
Ontario	45,100	75,300	67.0%
Pomona	38,600	51,100	32.4%
Rancho Cucamonga	55,400	73,100	31.9%
Upland	25,900	28,900	11.6%

Cities/Counties	2012	2040	Housing % increase 2018-2040
Unincorporated Riverside County*	3	5	66.7%
Unincorporated San Bernardino County*	25,123	29,684	18.2%
TOTALS	**718,126**	**981,989**	**36.7%**

Source: SCAG 2016 RTP SCS Demographics and Growth Forecast
*within Chino Basin as discussed in the Introduction above.

The SCAG region has returned to the pre-recession level of 8 million jobs in 2015 with a much lower unemployment rate of 6.6 percent in 2015 than in 2010 when the U.S. Census was taken. However, this level has reduced even further as of 2020: the unemployment rate was 3.7 percent in Riverside County, and 3.3 percent in San Bernardino County in January 2020.[48] As shown in **Table XVI-3**, employment is projected to increase by 53.6 percent over the next 20 years and is estimated to have total employment of 1,165,002 in the Chino Basin by the year 2040.

Table XIV-3
SCAG EMPLOYMENT FORECAST

Cities/Counties	2012	2040	
Chino	42,600	50,600	
Chino Hills	11,500	18,600	
Eastvale	4,300	9,800	
Fontana	47,000	70,800	
Jurupa Valley	24,500	36,600	
Montclair	16,500	19,000	
Ontario	103,300	175,400	
Pomona	55,100	67,200	
Rancho Cucamonga	69,900	104,600	
Upland	27,900	43,500	
Unincorporated Riverside County*	2	5	
Unincorporated San Bernardino County*	15,309	24,297	
TOTALS	**758,711**	**1,165,002**	**% Change: 53.6**

Source: SCAG 2016 RTP SCS Demographics and Growth Forecast
*within Chino Basin as discussed in the Introduction above.

XIV.2 Impact Discussion

The population growth forecasts presented above and associated occupancy of dwelling units required to support this population represent assumed growth with or without implementation of the OBMPU. Regional growth in southern California is driven by a combination of in-migration and recruitment (births over deaths) from the existing population. To understand the potential effect of the OBMPU on future growth and growth inducement within the Chino Basin area, it is necessary to understand the role that the OBMPU will play if it is implemented. The strategic drivers and trends that shaped the goals and implementation actions of the OBMP in the late 1990s have changed, and there are several drivers and trends in today's water management space that may challenge the ability of the Parties to protect their collective interests in the Chino Basin and their water supply reliability. Growth is one of the drivers shaping water and basin management. As urban land uses replace agricultural and vacant land uses, the water demands of the

[48] California Employment Development Department, Labor Market Information Division (LMID), https://www.labormarketinfo.edd.ca.gov/file/lfmonth/rive$pds.pdf

Chino Basin Parties are expected to increase. The following is discussed in the Project Description, but is included here to depict the growth in water demand that is anticipated to occur within the Chino Basin through 2040 as a result of population growth within the Basin. The table below summarizes the actual (2015) and projected water demands, water supply plans, and population through 2040. Total water demand is projected to grow from about 290,000 afy in 2015 to about 420,000 afy by 2040, an increase of about 130,000 afy. The projected growth in water demand through 2040 is driven by the Appropriative Pool Parties, some of which will serve new urban water demands created by the conversion of agricultural and vacant land uses to urban uses.

Table XVI-4
AGGREGATE WATER SUPPLY PLAN FOR WATERMASTER PARTIES: 2015 TO 2040[49]

Water source	2015 (Actual)	2020	2025	2030	2035	2040
Volume (af)						
Chino Basin Groundwater	148,467	139,236	144,314	151,525	164,317	173,522
Non-Chino Basin Groundwater	51,398	55,722	61,741	63,299	64,991	66,783
Local Surface Water	8,108	19,653	19,653	19,653	19,653	19,653
Imported Water from Metropolitan	53,784	90,444	97,657	103,684	105,152	111,036
Other Imported Water	8,861	9,484	10,095	10,975	11,000	11,000
Recycled Water for Direct Reuse	17,554	23,678	24,323	26,910	30,451	33,953
Total	**288,171**	**338,218**	**357,782**	**376,046**	**395,564**	**415,947**
Percentage						
Chino Basin Groundwater	52%	41%	40%	40%	42%	42%
Non-Chino Basin Groundwater	18%	16%	17%	17%	16%	16%
Local Surface Water	3%	6%	5%	5%	5%	5%
Imported Water from Metropolitan	19%	27%	27%	28%	27%	27%
Other Imported Water	3%	3%	3%	3%	3%	3%
Recycled Water for Direct Reuse	6%	7%	7%	7%	8%	8%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
Population (million)*	1.95	2.07	2.21	2.38	2.57	2.73

*The population projection is based on the service area population of all Chino Basin Appropriative Pool agencies. For some Appropriative Pool agencies, the service areas expand outside of the Chino Basin.
The population data provided in the introduction to this Chapter provides a more accurate representation of the population within the Chino Basin than is listed in this table, and more accurately reflects the general areas OBMPU facilities are proposed to be developed.

The OBMPU is not intended to be directly involved in supplying municipal water supplies to customers. Thus, the Program and its implementation are one step removed from actual development and provisions of adequate water supplies in support of building-out each jurisdictions' general plan. Water does not serve as a constraint to growth and by planning and expanding water system infrastructure to meet this future demand, water purveyors are growth accommodating, not inducing growth. It is assumed that growth decisions have already been made by local agencies governing land use decisions, and that, furthermore, each individual water agency (listed under CEQA Responsible Agencies in the Project Description) within Chino Basin produces an Urban Water Management Program, which is prepared by a water purveyor to conduct long-term water supply and water resource planning and ensure reliability in water service sufficient to meet the needs of its customer base. As such, the OBMPU does not remove any existing constraint on future development, because Chino Basin water purveyors have alternative means to meet future water demands.

[49] Sourced from: WEI. (2019). *Final 2020 Storage Management Plan*. December 2019.

a. *Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?*

As discussed in the introduction to the Impact Discussion above, inducement of growth is, in part, based on the ability to meet the water demands of a given area, in this case, the Chino Basin. Current water demands are estimated to be 338,218 afy. Future water demands are anticipated to reach 415,947 afy by 2040. As discussed under the Project Description, the projected growth in water demand through 2040 is driven by the Appropriative Pool Parties, some of which will serve new urban water demands created by the conversion of agricultural and vacant land uses to urban uses. The Cities and other water purveyors within the Chino Basin have evaluated water services requirements within their respective general plans based upon ultimate development (buildout) conditions. In addition, the water agencies within the Chino Basin have prepared Urban Water Management Plans, or otherwise prepared water supply plans, to assess the short-term and long-term water demands of their service areas. However, one of the goals of the OBMPU is "to encourage sustainable management of the Chino Basin to avoid Material Physical Injury, promote local control, and <u>improve water-supply reliability for the benefit of all Chino Basin Parties</u>." A second goal is "<u>to</u> <u>increase the water supplies available for Chino Basin Parties and improve water supply reliability. This goal applies to Chino Basin groundwater and all other sources of water available for beneficial use</u>." As such, the facilities proposed to be implemented by the OBMPU are intended to ensure water supply reliability for the water agencies utilizing groundwater from the Chino Basin. However, regardless of whether the OBMPU is implemented, individual water agencies have identified individual actions that they can implement to meet future water demands within the Chino Basin.

The OBMPU takes a more global approach to water demand and supply issues compared to the evaluations at a General Plan or Urban Water Management Plan level and looks toward providing more effective and efficient ways to protect the viability of the entire Basin. Furthermore, emphasis is placed upon programs such as recycling water and conveying recycled water, improving water quality, extraction of salts, storage of water, facilitating more efficient recharge, and expansion of safe storage capacity within the Basin. The OBMPU functions as one path of fulfilling the water supply demands outlined in local jurisdiction general plans and Urban Water Management Plans. As such, the OBMPU is growth accommodating as outlined above under Environmental Setting, but it does not in and of itself create opportunities for additional people to move to the region, nor to construct additional facilities beyond those previously under consideration to accommodate the population envisioned within the applicable general plan at buildout within each community located in the Chino Basin. Based on this analysis, there is a less than significant potential for implementation of the OBMPU to cause or contribute to significant adverse population growth inducement within the Chino Basin.

<u>**Project Category 1: Well Development and Monitoring Devices (PEs 1-9)**</u>
This Project Category includes the development of ASR, injection, pumping, groundwater level monitoring, and groundwater quality wells, associated well housing, as well as monitoring devices such as flow meters and extensometers. The proposed wells and monitoring devices will be installed throughout the Chino Basin.

The proposed OBMPU does not include construction of new homes or businesses that would result in a direct increase in population of create a substantial number of new jobs that would result in new residents of the Chino Basin area. Construction of the proposed wells and installation of the proposed monitoring devices would require temporary employment. It is unknown whether these employees would be drawn from within or outside of the Chino Basin area; however, given the large area that makes up the Chino Basin, it is reasonable to assume that many employment opportunities would be filled by workers drawn from the Chino Basin area. Given that between 3.3 and 3.7 percent of the labor force within Chino Basin is unemployed, it is reasonable to assume that there are available workers for the construction activities associated with the proposed OBMPU improvements. As such, it is assumed that there would be an adequate number of workers within the Chino Basin that could be available for construction jobs and could commute to the temporary construction jobs rather than relocate and induce growth in the area.

Operation of the proposed wells and monitoring devices is not forecast to require more than 5 additional permanent employees; however, the overall OBMPU facilities outlined below in the remaining Project

Categories are anticipated to require 25 employees, for a total of 30 employees required for the overall facilities proposed as part of the OBMPU. These employees are expected to be drawn from existing population. This population increase is minimal and is within the population increase anticipated to occur within the Chino Basin of the 20- and 30-year horizon. Therefore, the implementation of the proposed facilities would result in less than significant impacts related to inducement of population growth.

Project Category 2: Conveyance Facilities and Ancillary Facilities (PEs 2, 4-9)
This category includes the construction of 550,000 LF of new pipelines, booster pump stations, reservoirs and minor appurtenances whose number. The proposed conveyance facilities and ancillary facilities would be implemented throughout the entire Chino Basin.

Impacts would be the same as described above for Project Category 1.

Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands (PEs 2, 4-5, 8/9)
This Project Category includes the construction of 310 acres of new storage basins—several locations for which are within existing facilities, improvements to existing storage basin(s), 200 acres of flood MAR facilities, new MS4-compliance facilities, and expansion of the maximum storage space (safe storage capacity) to be used within the Chino Basin from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af between this range of storage. The specific locations of the storage basins are described in the Project Description above; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

Impacts would be the same as described above for Project Category 1 and 2.

The proposed expansion of the safe storage capacity from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward would not result in any large, visible above ground impacts beyond those facilities outlined herein that would support this expansion. As such, no potential to substantially induce population growth exists.

Project Category 4: Desalters and Water Treatment Facilities (PEs 2, 4-9)
The projects proposed under this category are: upgrades at IEUA's existing Treatment Plants (discussed in IEUA's 2017 FMP PEIR), a new advanced water treatment plant (discussed in IEUA's 2017 FMP PEIR), improvements to the WFA Agua de Lejos Treatment Plant, upgrades to the Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities.

Impacts would be the same as described above for Project Category 1, 2, and 3.

Combined Project Categories

Level of Significance Before Mitigation: Less Than Significant

Mitigation Measures: None Required.

Level of Significance After Mitigation: Less Than Significant

b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

Project Category 1: Well Development and Monitoring Devices (PEs 1-9)
This Project Category includes the development of ASR, injection, pumping, groundwater level monitoring, and groundwater quality wells, associated well housing, as well as monitoring devices such as flow meters and extensometers. The proposed wells and monitoring devices will be installed throughout the Chino Basin.

Once constructed, the proposed wells would occupy a footprint anticipated to be less than 20 feet by 20 feet, though in most cases, the area a well would occupy would be about 10 feet by 10 feet. The proposed extensometers would be installed within wells, and the proposed flow meters would be located at or below ground level within streams and channels to monitor surface water, and therefore would have no potential displace persons or housing. No housing is proposed to be displaced or eliminated by the proposed wells, particularly given the small footprint of wells. The goal of the project and the effect of the physical changes to the environment is to install infrastructure to enhance safe yield and water quality within the Chino Basin. However, given that the locations of the proposed wells are presently unknown, it is remotely possible that the development of specific facilities could adversely impact existing housing. A mitigation measure is outlined below to ensure that such an impact is fully mitigated. With implementation of this measure, the proposed project is not forecast to cause a significant displacement of existing housing or persons.

Project Category 2: Conveyance Facilities and Ancillary Facilities (PEs 2, 4-9)
This category includes the construction of 550,000 LF of new pipelines, booster pump stations, reservoirs and minor appurtenances whose number. The proposed conveyance and ancillary facilities would be implemented throughout the entire Chino Basin.

Pipelines and ancillary facilities would be installed primarily within or adjacent to public rights-of-way to the extent feasible. However, given that the locations of the proposed conveyance and ancillary facilities are presently unknown, it is remotely possible that the development of specific facilities could adversely impact existing housing. As such, impacts under this Project Category are the same as those identified under Project Category 1.

Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands (PEs 2, 4-5, 8/9)
This Project Category includes the construction of 310 acres of new storage basins—several locations for which are within existing facilities, improvements to existing storage basin(s), 200 acres of flood MAR facilities, new MS4-compliance facilities, and expansion of the maximum storage space (safe storage capacity) to be used within the Chino Basin from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af between this range of storage. The specific locations of the storage basins are described in the Project Description above; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

Facilities located within existing storage basins at existing facilities (Jurupa Basin, Lower Cucamonga Ponds, Mills Wetlands, and Riverside Basin) would occur within sites that do not contain housing or residents. As such, no potential exists for development at these sites to result in displacement of housing or persons.

The construction of new storage basins (CIM, Vulcan Basin, and Confluence Project), MS4 facilities, and flood MAR facilities at new sites would be developed at either known sites that have not been developed, or at sites for which the location has not been determined. Impacts to new storage basins, MS4 facilities, and flood MAR facilities at new sites would be the same as Project Category 2.

The proposed expansion of the safe storage capacity from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward would not result in any large, visible above ground impacts beyond those facilities outlined herein that would support this expansion. As such, no potential to displace persons or housing exists.

Project Category 4: Desalters and Water Treatment Facilities (PEs 2, 4-9)
The projects proposed under this category are: upgrades at IEUA's existing Treatment Plants (discussed in IEUA's 2017 FMP PEIR), a new advanced water treatment plant (discussed in IEUA's 2017 FMP PEIR), improvements to the WFA Agua de Lejos Treatment Plant, upgrades to the Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities. The population and housing related impacts related to the facilities thoroughly analyzed as part of the IEUA's 2017 FMP PEIR, and will not be analyzed further as part of this Initial Study.

Upgrades and improvements to existing facilities (WFA Agua de Lejos Treatment Plant, Chino Desalters, and existing groundwater treatment facilities) and groundwater treatment facilities at well sites would occur within developed sites already containing desalter, water treatment facilities or wells, and as such, treatment facility upgrades would be located within existing sites designated for this use. As such, no displacement of persons or housing would occur.

The location for regional groundwater treatment facilities and groundwater treatment facilities near well sites is presently unknown. Groundwater treatment facilities near well sites would occupy an area of about 0.5 acre to 2 acres. Impacts to regional groundwater treatment facilities and groundwater treatment facilities near well sites would be the same as Project Categories 1, 2, and 3.

Combined Project Categories

Level of Significance Before Mitigation: Potentially Significant

Mitigation Measures:

POP-1: ***If future OBMPU facilities must be located on parcels occupied by existing housing, the proponent of the facility will ensure that short- and long-term housing of comparable quality and value are made available to the home owner(s) prior to initiating construction of the facility.***

Level of Significance After Mitigation: Less Than Significant

Mitigation measure **POP-1** would ensure that the facilities associated with the OBMPU that must be located on parcels containing housing would be minimized through the provision of short- and long-term housing of comparable quality, thereby minimizing impacts below significance thresholds.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
XV. PUBLIC SERVICES: Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
a) Fire protection?	☐	☐	☒	☐
b) Police protection?	☐	☒	☐	☐
c) Schools?	☐	☐	☒	☐
d) Parks?	☐	☒	☐	☐
e) Other public facilities?	☐	☐	☒	☐

SUBSTANTIATION

XV.1 Environmental Setting

As previously stated, the Chino Basin is one of the largest groundwater basins in Southern California and has an estimated unused storage capacity of over 1,000,000 acre-feet. The Chino Basin covers approximately 235 square miles within the Upper Santa Ana River Watershed and lies within portions of San Bernardino, Riverside, and Los Angeles counties. Exhibit 1 shows the location of the Chino Basin within the Upper Santa Ana River Watershed. The Chino Basin includes the following incorporated cities: Chino, Chino Hills, Eastvale, Fontana, Jurupa Valley, Montclair, Ontario, Pomona, Rancho Cucamonga, and Upland. The Basin includes limited areas of unincorporated Riverside and San Bernardino Counties.

<u>Fire/Emergency Protection Services</u>

State

The California Department of Forestry and Fire Protection (CAL FIRE) is responsible for fire protection within State Responsibility Areas (SRAs), including 31 million acres throughout California. In most cases, SRAs are protected directly by CAL FIRE. However, in some counties, such as San Bernardino County, fire protection within the SRA is provided by the county under contract with CAL FIRE (CAL FIRE, 2016). However, depending on the scale and circumstances of the fire, CAL FIRE responds with firefighting resources to assist the County (CAL FIRE, 2012). CAL FIRE serves the Chino Basin area with the Prado Station located at 14467 Central Avenue in Chino. There is a second CAL FIRE location—CAL FIRE West Riverside—within the Chino Basin area at 7545 Mission Boulevard, Jurupa Valley, CA 92509.

Local

San Bernardino County Fire Department

The San Bernardino County Fire Protection District is a community-based, all hazard emergency services provider. The San Bernardino County Fire Department (SBCFD) provides fire and emergency response services to more than 60 communities/cities and all unincorporated areas of the County. SBCFD's Office of Emergency Services (OES) serves as the Operational Area Lead Agency, coordinating the provision of emergency services with the 24 cities and towns in San Bernardino County.[50] SBCFD has 48 professionally staffed fire stations within its service area, 9 paid/volunteer fire station, and covers 19,200 square miles.[51]

[50] https://www.sbcfire.org/about/AboutSBCFire.aspx
[51] San Bernardino County Fire Annual Report (July 2018-June 2019):

There are 1,071 county fire personnel and 683 fire suppression personnel. Within the Chino Basin, the County serves the City of Fontana and the City of Upland, as well as unincorporated San Bernardino County. Stations within the Chino Basin service area are listed below in **Table XV-1**.

Table XV-1
SAN BERNARDINO COUNTY VALLEY DIVISION FIRE STATIONS

Station Name	Station Number	Full Address
Fontana	79	5075 Coyote Canyon Rd, Fontana, CA, 92336
Fontana	78	7110 Citrus Ave, Fontana, CA, 92335
Fontana	73	8143 Banana Ave, Fontana, CA 92335
Fontana	71	16980 Arrow Blvd, Fontana, CA, 92335
Fontana	72	15380 San Bernardino Ave, Fontana, CA, 92335
Fontana	74	11500 Live Oak Ave, Fontana, CA, 92335
Fontana	77	17459 Slover Ave, Fontana, CA, 92316
Upland	12	2413 N Euclid Ave, Upland, CA 91784
Upland	164	1825 N Campus Ave, Upland, CA 91784
Upland	161	475 N 2nd Ave, Upland, CA 91786
Upland	163	1350 N Benson Ave, Upland, CA 91786
SOURCE: SBCFD, 2020		

The San Bernardino County Fire Chief's Association compiled a *Fire and Rescue Mutual Aid Operational Plan* to integrate their operational plan as part of the current State of California Fire and Rescue Emergency Plan. The plan provides for the systematic mobilization, organization, and operation of fire and rescue resources within each zone of the County to mitigate effects of emergencies and disasters. The plan provides updated fire and rescue service inventory of personnel, apparatus, and equipment amongst all local, regional, and state fire officials. The Chino Basin is within Zone 1, West Valley, and within a small portion of Zone 2, East Valley. The plan indicates what fire agencies participate in each zone and what specialized equipment they have (County of San Bernardino, 2013a). The participating Fire Agencies within a Mutual Aid Agreement include:

Zone 1
- Chino Valley Fire District
- San Bernardino County Fire Department
- Chino Institute for Men Fire Department
- Chino Institute for Woman Fire Department
- Montclair Fire Department
- Mt. Baldy Fire Department Ontario Fire Department
- Rancho Cucamonga Fire Protection District Upland Fire Department
- Ontario International Airport Fire Department

Zone 2
- Fontana Fire Department (Contract with San Bernardino County Fire Department)
- San Bernardino County Fire Department

County of Riverside
Limited portions of Riverside County are within the Chino Basin area. The City of Jurupa Valley is served by the Riverside County Fire Department, as are the unincorporated communities of Riverside County

https://www.sbcfire.org/Portals/58/Documents/About/2018-19AnnualReport.pdf located within and outside of the Chino Basin. In 2018, the Riverside County Fire Department responded to 165,989 incidents; the average number of daily calls was 454. The fire stations located within the Chino Basin are outlined under **Table XV-3** and **XV-4**, no other Riverside County Fire Department stations are located within Chino Basin.

Cities of Chino and Chino Hills
The Cities of Chino and Chino Hills are served by the Chino Valley Fire District (CVFD), which is located in the southwest region of San Bernardino County. The CVFD is not a City Department, but is a separate political agency with its own elected Board of Directors. The District's jurisdiction covers approximately 80 square miles in size and has an estimated population of 170,845. The Cities of Chino, Chino Hills, and surrounding unincorporated areas of San Bernardino County are served by the CVFD. The Chino Valley Fire District (CVFD) employs 140 professional firefighters. In 2018, personnel responded to over 12,200 emergency incidents. CVFD is made up of 7 stations, one administration building, and one training center, as listed in **Table XV-2.**[52]

Table XV-2
CHINO VALLEY FIRE DISTRICT FIRE STATIONS

Station Number/Facility	Full Address
Station 61	5078 Schaefer Avenue Chino, CA 91710
Station 62	5551 Butterfield Ranch Road Chino Hills, CA 91709
Station 63	7550 Kimball Ave Chino, CA 91710
Station 64	16231 Canon Lane Chino Hills, CA 91709
Station 65	12220 Ramona Avenue Chino, CA 91710
Station 66	13707 Peyton Avenue Chino Hills, CA 91709
Station 67	5980 Riverside Drive Chino, CA 91710
Administration Building	14011 City Center Drive Chino Hills, CA 91709
Training Center	5092 Schaefer Avenue Chino, CA 91710
SOURCE: CVFD, 2018	

City of Eastvale
The City of Eastvale, Riverside County Fire Department, Cal Fire have two Fire Stations, Station 27 and Station 31. The Eastvale Fire Department provides full service, municipal and wildland fire protection, pre-hospital emergency medical response by paramedics and EMT's, technical rescue services and response to hazardous materials discharges. About 83% of the 1400 incidents that are responded to in a year on average are medical emergencies and about 13% are fires. The other 4% of incidents include technical rescues and hazardous materials incidents.[53] **Table XV-3** outlines the location of the fire departments within the City of Eastvale.

Table XV-3
EASTVALE FIRE STATIONS

Station Number/Facility	Full Address
Station 27	7067 Hamner Avenue, Eastvale, CA 92880
Station 31	14491 Chandler Street, Eastvale, CA 92880
SOURCE: https://www.eastvaleca.gov/government/fire-services	

[52] Chino Valley Fire District Annual Report 2018 http://www.chinovalleyfire.org/DocumentCenter/View/1091/Annual-Report-2018
[53] https://www.eastvaleca.gov/government/fire-services

City of Fontana

Fire and emergency response services are provided to the City of Fontana from the Fontana Fire District (FFD). In July 2005, the San Bernardino County Board of Supervisors initiated the reorganization of its fire operations and filed an application with the San Bernardino Local Agency Formation Commission (LAFCO) to review and consider the reorganization of the SBCFD. The Fontana City Council proposed that a subsidiary fire district should be made for the City and that the Council would govern it. The City now contracts services to the SBCFD who serves Fontana's corporate limits and County areas within the City's sphere of influence. The FFD staffs about 33 employees and is comprised of 7 stations (listed above under **Table XV-1)**.

City of Jurupa Valley

The County of Riverside, through its cooperative agreement with Cal Fire, provides the City of Jurupa Valley with fire protection, hazardous materials mitigation, technical rescue response, fire marshal, emergency medical services, public service assists, and disaster preparedness and response.

Table XV-4
JURUPA VALLEY FIRE STATIONS

Station Number/Facility	Full Address
Cal Fire / Riverside County Fire Department Administrative Headquarters	210 W San Jacinto Avenue Perris, CA 92570
Glen Avon Fire Station 17	10500 San Sevaine Way Jurupa Valley, CA 91752
Pedley Fire Station 16	9270 Limonite Avenue Jurupa Valley, CA 92509
Rubidoux Fire Station (38)	5721 Mission Boulevard Jurupa Valley, CA 92509
West Riverside Fire Station 18	7545 Mission Boulevard Jurupa Valley, CA 92509
SOURCE: https://www.jurupavalley.org/212/Cal-Fire	

Cities of Montclair and Upland

Since the 1960's, the Montclair Fire Department has been participating in an "All Hazard" emergency aid system with surrounding communities through mutual-aid and automatic-aid agreements, such as the Consolidated Fire Agencies joint power agreement (JPA) known as CONFIRE. These aid agreements allow each fire agency to plan and prepare for large scale incidents that would otherwise deplete the local available emergency resources. In addition to the regionalization with the Upland Fire Department, the local aid agreements include the Chino Valley Fire District, Ontario Fire Department, Rancho Cucamonga Fire Protection District, San Bernardino County Fire Department, and the Los Angeles County Fire Department.

While fire and emergency services for the City of Montclair are provided by the Montclair Fire Department (MFD), and fire services in the City of Upland are provided by the Upland Fire (UFD), CONFIRE is responsible for regional fire services including oversight of both MFD and UFD.

The departments serve 22 square miles with a population of approximately 111,000. The MFD and UFD staff includes 85 full time personnel. The MFD operates two (Station 151 and 152) out of the seven total fire stations, providing 7-days week/24-hours day/365-days a year "all hazard" emergency services to the community. The Montclair Fire Department responded to 5,349 calls for service in 2015 and 5,515 in 2016.[54] The UFD provides basic life support services to its service area along with fire protection and prevention. There are three paramedic engines and one paramedic truck that is staffed and equipped to provide advanced life support services for medical response. The City of Upland also staffs a helicopter with a flight nurse. The UFD shares their personnel with MFD, as mentioned above, and operates out of five fire stations (listed above in **Table XV-1**) within the Chino Basin area. **Table XV-5** outlines fire stations within Montclair.

[54] https://www.cityofmontclair.org/city-government/fire-department/calls-for-service

Table XV-5
MONTCLAIR FIRE STATIONS

Station Number/Facility	Full Address
Station 151 (MFD)	8901 Monte Vista Avenue Montclair, CA 91763
Station 152 (MFD)	10825 Monte Vista Avenue Montclair, CA 91762
SOURCE: MFD, 2018	

City of Ontario
The Ontario Fire Department (OFD) works out of eight stations (Stations 1 through 8, listed below in **Table XV-6**) and all stations are comprised of eight, 4-man paramedic engines companies, and two 4-man truck companies. The department responds to more than 15,000 calls per year, serving and protecting a city population of approximately 173,000.[55] OFD employs 58 firefighter/paramedics and 66 firefighter/emergency medical technicians (EMTs). All eight fire engines are staffed with at least two firefighter/paramedics.

Table XV-6
ONTARIO FIRE STATIONS

Station Number/Facility	Full Address
Station 1	425 East B Street Ontario, CA 91764
Station 2	544 West Francis Street Ontario, CA 91762
Station 3	1408 East Francis Street Ontario, CA 91761
Station 4	1005 North Mountain Avenue Ontario, CA 91761
Station 5	1530 East Fourth Street Ontario, CA 91764
Station 6	2931 East Philadelphia Avenue Ontario, CA 91761
Station 7	4901 East Vanderbilt Street Ontario, CA 91761
Station 8	3429 East Shelby Street Ontario, CA 91761
SOURCE: Ontario Fire Department, 2019	

City of Pomona
The City of Pomona is served by the Los Angeles County Fire Department (LACFD). The LACFD serves more than 4.1 million residents and commercial business within 59 Cities along 72 miles of coastline, and all unincorporated areas within the County's 2,300 square miles. LACFD is one of the world's largest emergency service agencies, and also provides health, hazardous materials, and forestry services throughout the County.[56] **Table XV-7** outlines the LACFD located within the City of Pomona.

Table XV-7
POMONA FIRRE STATIONS

Station Number/Facility	Full Address
Station 181 (Division and Battalion Headquarter)	590 S. Park Avenue Pomona, CA 91766-3038
Station 182	1059 N. White Avenue Pomona, CA 91768-3038
Station 183	708 N. San Antonio Pomona 91767-4910
Station 184	1980 W. Orange Grove Pomona 91768-2046

[55] http://www.ontarioca.gov/fire
[56] https://www.fire.lacounty.gov/home/about-us/

Station Number/Facility	Full Address
Station 185	925 E. Lexington Pomona, 91766-5204
Station 186	280 E. Bonita Pomona, 91767-1924
Station 187	3325 Temple Avenue Pomona, 91768-3256
Station 188	18 A Village Loop Road Pomona, 91766-4811
Station 189 (open during LA County Fair)	1101 McKinley Avenue Pomona, 91768
SOURCE: https://www.ci.pomona.ca.us/index.php/fire-department-home	

City of Rancho Cucamonga

The City of Rancho Cucamonga is served by the Rancho Cucamonga Fire Protection District (RCFPD). The RCFPD serves a 50 square mile area that serves nearly 170,000 residents. There are over 120 full-time and part-time RCFPD employees. All firefighters are cross-trained firefighter/paramedics and firefighter/EMTs (City of Rancho Cucamonga, 2016). The RCFPD operates out of seven stations, within its jurisdiction, as listed below in **Table XV-8**.

Table XV-8
RANCHO CUCAMONGA FIRE STATIONS

Station Number/Facility	Full Address
Station 171	6627 Amethyst Street Rancho Cucamonga, CA 91737
Station 172	9612 San Bernardino Road Rancho Cucamonga, CA 91730
Station 173	12270 Fire House Court Rancho Cucamonga, CA 91739
Station 174	Jersey Boulevard Rancho Cucamonga, CA 91730
Station 175	11108 Banyan Street Rancho Cucamonga, CA 91737
Station 176	5840 East Avenue Rancho Cucamonga, CA 91739
Station 177	9270 Rancho Street Rancho Cucamonga, CA 91737
SOURCE: RCFFA, 2019	

Police Protection Services

State

The California Highway Patrol (CHP) is a law enforcement agency created in 1929 to provide uniform traffic law enforcement for the state of California. The CHP has jurisdiction over all Interstates and State Routes in the IEUA service area including: I-10, I-15, SR-60, SR-71, SR-142, SR-210, SR-83, and SR-66. The IEUA service area is served by the Inland Division, which has two facilities in the area. The Inland Communications Center (ICC) is located at 13892 Victoria Street in Fontana, CA 92336, and is the fourth largest CHP communications center with a complement of nearly 70 employees including 56 Public Safety Dispatchers. ICC serves the citizens of one of the fastest expanding areas of California answering approximately 55,000 calls for service each month.[57] The Rancho Cucamonga Station is located at 9530 Pittsburgh Avenue in Rancho Cucamonga, CA 91730, and patrols over 250 square miles of freeways and unincorporated roadways in and around the cities of Chino, Chino Hills, Fontana, Montclair, Ontario, Rancho Cucamonga, Upland, Mt. Baldy, and San Antonio Heights.

Local

San Bernardino County Sheriff's Department

The San Bernardino County Sheriff's Department (SBCSD), in collaboration with various cities and other agencies that have jurisdiction in the County, provides law enforcement services to the incorporated and

[57] https://www.chp.ca.gov/find-an-office/inland-division/offices/(818)-inland-empire-communications-center

the unincorporated communities in the County. Many cities have contracted police protection services to the SBCSD, including Chino Hills and Rancho Cucamonga. The personnel of the SBCSD provide law enforcement services to the County's citizens through 21 patrol stations and 18 specific divisions.

Riverside County Sheriff's Department

Riverside County is the 4th-largest of California's 58 counties in both population and sheer land mass. It has consistently been among the fastest growing counties in the country, serving across more than 7,200 square miles and policing 17 of the 28 cities in Riverside County. The Riverside Sheriff's Department is the 2nd-largest Sheriff's Office in California, managing five correctional facilities, Coroner-Public Administrator duties, and providing court services.[58] The Chino Basin area is served by the Jurupa Valley Station, which is commanded by a Captain and consists of a patrol function and an investigative function providing contract police services for the cities of Norco, **Eastvale and Jurupa Valley**, and for County unincorporated areas in its vicinity. The Jurupa Valley Station is located at 7477 Mission Boulevard, Jurupa Valley, CA 92509.

City of Chino

The Chino Police Department (CPD), located at 5450 Guardian Way, Chino, CA 91710, is comprised of more than 150 employees, both sworn and professional staff, and over 50 dedicated volunteers. CPD serves more than 85,000 residents within 30 square miles. The CPD handles over 9,600 calls for service each month and provides full-service operations in various divisions, such as: Patrol, Traffic Enforcement, Criminal Investigations, Special Enforcement Team, School Resource Officer, Crime Analysis, Communications, and Crime Prevention, amongst many others. As mentioned above, some portions of Chino are also served by the Chino Hills Station in contract with the SBCSD. [59]

City of Chino Hills

As mentioned above, the Chino Hills Police Department (CHPD) has been contracted with SBCSD since 1991. The city consists of approximately 46 square miles with a population of 76,000 people. The CHPD Station has 52 sworn personnel and 15 civilian personnel assigned. Deputies respond to over 36,000 calls for service per year in the city and have a large volunteer unit consisting of Citizens on Patrol, Explorer Post, and Reserve Deputy Sheriffs. The Chino Hills Station is located at 14077 Peyton Drive Chino Hills, CA 91709.

City of Fontana

The Fontana Police Department (FPD), located at 17005 Upland Avenue Fontana, CA 92335, currently staffs 188 sworn officers and serves approximately 42 square miles and over 200,000 people.[60] The FPD works with SBCSD in a combined effort to provide protection services for the 300 square mile area that also includes Bloomington, Rialto, and Lytle Creek. FPD deputies also team with the surrounding agencies of Rialto Police, Rancho Cucamonga Police, and Riverside County Sheriff Department.

City of Montclair

The Montclair Police Department (MPD) serves a 5.5 square mile community of approximately 37,000 residents. MPD staffs 60 sworn officers that offer specialized assignments such as a Detective Bureau, Narcotics Investigations Task Force, Motor Officer Program, and Technical Services. In addition to MPD's sworn force, the MPD employs 50 full and part-time civilian support personnel and 18 volunteers. Lead by the Chief of Police, MPD comprises three divisions: Administrative, Support Services, and Field Services, and is located at 4870 Arrow Highway Montclair, CA 91763.

City of Ontario

The Ontario Police Department (OPD) has three main service bureaus and employs 409 sworn and civilian positions, and K-9 units.[61] OPD has one main station, located at 2500 South Archibald Avenue Ontario, CA 91761, and one substation at the Ontario Mills Mall, located at 1 Mills Circle Ontario, CA 91764. In addition to serving the City of Ontario, the OPD participates in mutual aid agreements with different public agencies

[58] http://www.riversidesheriff.org/
[59] https://www.cityofchino.org/cms/One.aspx?portalId=10382662&pageId=11471216
[60] https://www.fontana.org/2509/About-Us
[61] https://www.ontarioca.gov/Police

to provide the optimum level of service during times of emergency. The OPD holds a mutual aid agreement with the SBCSD and various jurisdictions surrounding Ontario. The City of Ontario also participates in a statewide mutual aid program facilitated by the Governor's Office of Emergency Services (OES).

City of Pomona
The Police Department provides law enforcement services to the community which preserve and protect life and property; enforces city, county, state and federal statutes, ordinances and laws; investigates criminal activities; apprehends criminals and recovers stolen property; provides programs to educate the public in crime prevention, and processes all parking citations.[62] The Operations Division is the largest in the organization and is responsible for the field services provided to the City of Pomona by uniformed personnel. Specialized units within the Division including the K9 Unit, Youth Services Unit, SWAT team, Bike Patrol, and all augment Patrol Services. These units work together in an effort to reduce crime and increase service delivery with the ultimate goal of public safety in a city of an estimated 150,000 people in 24 square miles. Pomona is the fourth largest city by population in the County of Los Angeles. Patrol Services represent the primary function of the Police Department. This program has the responsibility of protecting life and property as well as maintaining law and order, preserving peace and security in the community, and positively impacting the quality of life for Pomona's residents. The Police Department is located at 490 W Mission Blvd, Pomona, CA 91766.

City of Rancho Cucamonga
As previously described, the Rancho Cucamonga Police Department (RCPD) contracts with the SBCSD to provide law enforcement services for the city. The SBCSD's 187 Sheriff's personnel serve Rancho Cucamonga citizens out of one main station, located at 10510 Civic Center Drive Rancho Cucamonga, CA 91730, and one sub-station in Victoria Gardens Shopping Center, located at 7743 Kew Avenue Rancho Cucamonga, CA 91739. The SBCSD serves a 38 square mile area with approximately 177,000 people. The RCPD also works in cooperation with the law enforcement agencies of neighboring cities and jurisdictions, as well as State and Federal agencies.[63]

City of Upland
The Upland Police Department (UPD) is comprised of three divisions and 70 sworn and professional personnel that work out of one station located at 1499 West Thirteenth Street Upland, CA 91786. UPD serves approximately 16 square miles and over 76,000 residents (United States Census Bureau, 2014). As mentioned above, some portions of Upland are also served by the SBCSD Chino Hills Station. UPD works with neighboring cities to provide 24 hours a day / 7 days a week protection services.

<u>Schools</u>

San Bernardino County Superintendent Schools
With a County-wide K-12 student population of approximately 406,069 students in the 2018-2019 school year, attending more than 543 schools (2017-2018), the San Bernardino County Superintendent of Schools (SBCSS) office, located at 601 North East Street San Bernardino, CA 92410, is a regional agency that provides vital and necessary service, leadership and advocacy to the 34 K-12 districts in the County.

The Chino Basin within San Bernardino County is made up of eight K-12 districts in total and has a student population of approximately 80,787 students that attend 156 schools (Education Data Partnership, 2020). **Table XV-9** shows the seven cities in the area, and school districts are associated with the cities, the number of schools in each district, and the total student population/enrollment.

[62] https://www.ci.pomona.ca.us/index.php/government/city-departments/police-department
[63] https://www.cityofrc.us/public-safety/police

Table XV-9
SAN BERNARDINO COUNTY AREA SCHOOL DISTRICTS

City	District	Number of Schools	Student Population (2017-2018)
Chino & Chino Hills	Chino Valley Unified School District	34	28,063
Fontana	Fontana Unified School District	44	36,335
Upland	Upland Unified School District	14	10,702
Montclair & Ontario	Chaffey Joint Union High School District Mountain View School District Ontario-Montclair School District	11 4 32	23,883 2,532 20,606
Rancho Cucamonga	Central School District Cucamonga School District	7 4	4,487 2,431
Total		**150**	**129,039**
SOURCE: Education Data Partnership, 2020. https://www.ed-data.org/district/San-Bernardino/San-Bernardino-County-Office-of-Education			

Los Angeles County Office of Education
With a County-wide K-12 student population of approximately 1,464,002 students in the 2018-2019 school year, attending more than 2,231 schools (2017-2018), the Los Angeles County Office of Education, located at 69300 Imperial Highway, Downey, CA 90242, is a regional agency that provides vital and necessary service, leadership and advocacy to the 89 K-12 districts in the County.

The Chino Basin within Los Angeles County is made up of one K-12 district in total and has a student population of approximately 23,185 students that attend 41 schools (Education Data Partnership, 2020). **Table XV-10** shows the seven cities in the area, and school districts are associated with the cities, the number of schools in each district, and the total student population/enrollment.

Table XV-10
LOS ANGELES COUNTY AREA SCHOOL DISTRICTS

City	District	Number of Schools	Student Population (2017-2018)
Pomona	Pomona Unified School District	41	23,185
SOURCE: Education Data Partnership, 2020. https://www.ed-data.org/district/Los-Angeles/Pomona-Unified			

Riverside County Office of Education
With a County-wide K-12 student population of approximately 428,494 students in the 2018-2019 school year, attending more than 488 schools (2017-2018), the Riverside County Office of Education in Riverside is located at 3939 Thirteenth St, Riverside, CA 92501, is a regional agency that provides vital and necessary service, leadership and advocacy to the 26 K-12 districts in the County.

The Chino Basin within Los Angeles County is made up of one K-12 district in total and has a student population of approximately 72,346 students that attend 77 schools (Education Data Partnership, 2020). **Table XV-11** shows the seven cities in the area, and school districts are associated with the cities, the number of schools in each district, and the total student population/enrollment.

Table XV-11
RIVERSIDE COUNTY AREA SCHOOL DISTRICTS

City	District	Number of Schools	Student Population (2017-2018)
Eastvale	Corona-Norco Unified School District	52	53,002
Jurupa Valley	Jurupa Unified Schools District	25	19,344
Total		**77**	**72,346**
SOURCE: Education Data Partnership, 2020. https://www.ed-data.org/county/Riverside			

Parks and Recreation

Federal Lands
Three national parks managed by the National Park Service are located within San Bernardino County and offer a variety of recreational opportunities to residents in the local area, including Death Valley National Park, Mojave National Preserve, and Joshua Tree National Park. None of these National Parks, however, lie within the Chino Basin.

Federal lands managed by the U.S. Forest Service including the Angeles and San Bernardino National Forests border the northern portion of the Chino Basin and offer a variety of recreational activities to local residents (County of San Bernardino General Plan). In addition, lands just south of the San Bernardino County line are managed by the Bureau of Land Management (BLM). However, none of these National Forest or BLM lands lies within the Chino Basin.

California State Parks and Recreation Department
The California State Parks and Recreation Department helps to preserve the state's biological diversity, protect its natural and cultural resources, and create opportunities for outdoor recreation. The Department manages several public parks within San Bernardino and Riverside Counties, but only one is included within the Chino Basin.

The Chino Hills State Park is located partially within the Chino Basin, off of SR-91 to Highway 71 North, and encompasses 12,452 acres consisting of oaks, sycamores, and rolling grassy hills that stretch approximately 31 miles from the Santa Ana Mountains to the Whittier Hills. Open year-round, the Chino Hills State Park allows for activities such as hiking, biking, horseback riding, and camping (County of San Bernardino General Plan).

San Bernardino County Regional Parks Department
The San Bernardino County Regional Parks Department manages and maintains nine regional parks throughout San Bernardino County totaling approximately 9,200 acres in diverse settings, including metropolitan areas, mountains, and deserts. Recreational opportunities found at these regional parks include lakes for fishing, sheltered group picnic facilities, RV and tent camping, and swim complexes with water slides, water play parks, and playgrounds (County of San Bernardino Regional Parks Department). The following two regional parks are located within the Chino Basin area.

The Cucamonga-Guasti Regional Park is located in the City of Ontario and provides 150 acres of outdoor recreation activities in an urban setting, with amenities including two lakes for fishing, a swim complex with water slides and a water play park, and picnic tables and group picnic shelters (County of San Bernardino Regional Parks Department).

Prado Regional Park is located in the Chino Valley basin in the southern portion of the IEUA service area. The park offers opportunities for fishing, camping, hiking, biking, disc golf, and picnicking. The park also features a meeting room, two golf courses, an Olympic shooting range, and opportunities for horseback riding and archery (County of San Bernardino Regional Parks Department).

Riverside County Regional Parks Department
The Riverside County Regional Park and Open-Space District (District) is dynamic and adjust to meet the needs of the county as a whole. Many programs are operated under the three bureaus which include: Parks & Resources, Planning & Development, and Business Services. The District is led by the General Manager/Parks Director and the executive team comprised of the Assistant Director and two Chiefs. The District's focus encompasses providing high-quality recreational opportunities and preserving important features of the County's natural, cultural, and historical heritage.[64]

Riverside County maintains 35 Regional Parks, encompassing roughly 23,317 acres. Other local parks fall under the jurisdiction of Riverside County Recreation and Park Districts and serve the following areas: the Beaumont-Cherry Valley area; the Coachella Valley; the Jurupa area; the Valleywide area incorporating the San Jacinto Valley, the Winchester area, the Menifee Valley, and the Anza Valley (Riverside County General Plan). Included as part of the District's facilities is the Jurupa Valley Boxing Club and the Rancho Jurupa Regional Sports Park, which is home to 32 acres of beautiful, lush, natural and synthetic turf fields. Comprised of four large marked and lighted synthetic turf fields, two large natural turf fields as well as nine smaller natural turf fields, the park is available by reservation for many outdoor activities.

City Recreation Departments

Chino
The Chino Community Services Department provides residents with a complete system of community and neighborhood parks, trails, facilities, and recreational opportunities. The Community Services Commission acts in an advisory capacity to the City Council and the Community Services Department on issues regarding recreation, human services, parks, and open space. The City of Chino strives to provide a variety of programs and services for individuals, families, youth, and seniors (50+) that include healthy lifestyle options, recreational and educational classes, counseling and prevention education, trips and tours, youth and adult sports, etc. Recreational centers within the City include the Neighborhood Activity Center, located at 5201 D Street, is designed to provide centralized recreation and Human Service programs for Chino residents; the Preserve Community Center is located at 15800 Main Street; and, the Carolyn Owens Community Center is located at 13201 Central Avenue.[65] In addition, there are 26 parks within the City of Chino.[66]

Chino Hills
The City of Chino Hills Recreation Division provides recreation activities to residents of the City of Chino Hills. The Parks and Recreation Commission is an advisory board to the City Council that consists of five members and advises the City Council on matters relating to acquisition, development, and maintenance of public parks, recreational facilities, and open space. There are approximately 44 parks and five community recreation facilities within the City of Chino Hills.

Eastvale
The City of Eastvale includes two different park districts located within the boundaries of the City: the Jurupa Community Services District (JCSD) and the Jurupa Area Recreation and Park District (JARPD). Residents that live west of Hamner Avenue within the City are part of the Jurupa Community Services District (JCSD).

JCSD provides park and recreation services as well as maintaining frontage landscaping and providing water, sewer and street lights for the City of Eastvale. The Parks and Recreation Department strives to provide the Eastvale community with the best possible programs, services, and special events. Awards and recognition from local, statewide, and national organizations assures residents they are receiving high-quality facilities and programs that meet the highest standards set forth by athletic, parks, and recreation professionals across the United States.[67] There are currently 13 parks in Eastvale with additional parks planned or in different stages of development. This accounts for approximately 250 acres of open space

[64] https://www.rivcoparks.org/about-us/
[65] https://www.cityofchino.org/residents/connection
[66] https://www.cityofchino.org/residents/parks
[67] https://www.jcsd.us/services/parks-and-recreation/about-the-parks-dept

in Eastvale. Currently there are approximately 50 recreation programs for families to choose from, which include recreational programming for off-track, before school, after school and Fun Fridays at three Elementary Schools in the Eastvale Area.[68]

There are four parks in Eastvale East of Hamner Avenue (between Hamner Ave. and the I-15 Freeway) that are part of the JARPD. The Board of Directors of the Jurupa Area Recreation and Park District are elected by Division to a four-year term. Each Director must live within the Division they represent.[69]

Fontana
The City of Fontana Community Services Department responds to the needs of the community through recreational, cultural, and other human services programs. The City of Fontana maintains over 40 parks, playgrounds, sports facilities, and other recreation facilitates in the community.[70]

Jurupa Valley
As stated under the Parks and Recreation discussion for Eastvale, the Jurupa Area Recreation and Park District (JARPD) was formed in 1984. Their charter states that their goal is “To provide parks and recreational facilities for current and future families in the 91752 and 92509 zip code areas.” With the growth of the Jurupa area, JARPD has grown too. We currently offer a wide variety of year-round recreational opportunities at 30 different parks and other facilities throughout the Jurupa Valley area.[71]

Montclair
The City of Montclair Human Services Department provides services for the recreation center, youth center, and senior center, and the Parks Division of the Public Works Department provides maintenance of the parks. The Civic Center is located at 5201 Benito Street and contains a City Hall, Council Chambers, Youth Center, Skate Park, Community Center, Gym, Senior Center, Recreation Center, Library, South Conference Room, Technology Center, and Alma Hofman Park. The City Parks Division maintains 11 community and neighborhood parks that provide active and passive recreational opportunities such as ball fields, ball courts, playground equipment, picnic areas, and open grass areas.

Ontario
The City of Ontario Recreation and Community Services Department provides recreational, educational, and cultural activities to the community. The Recreation and Community Services Department provides services at community centers, parks and schools throughout the City of Ontario. The City provides 32 parks and 7 community centers and 3 dog parks support a variety of recreational opportunities to its residents.[72]

Pomona
The Community Services Department provides low-cost/free recreation programs for all ages, assists Pomona's Youth and Family Master Plan, coordinates rentals of city facilities (including community centers and picnic pavilions), and issues permits for special events and park usage. There are 27 parks within the City of Pomona, which include the following amenities: restrooms, parking, barbeque grills, picnic tables, drinking fountains, community centers, patios, playgrounds, baseball/softball fields, soccer fields, basketball courts, tennis courts, swimming pools, and concession stands.[73]

Rancho Cucamonga
The City of Rancho Cucamonga Park and Recreation Commission acts in an advisory capacity to the City Council with respect to park and recreation facilities and services. The City provides 30 parks, 7 recreation facilities, and 2 trails for various activities, including walking, running, biking, hiking, and horseback riding.[74]
Upland

[68] https://www.eastvaleca.gov/community/parks-and-recreation
[69] https://www.jarpd.org/about-us
[70] https://www.fontana.org/156/Facilities-Parks
[71] https://www.jurupavalley.org/242/Jurupa-Area-Recreation-Park-District-JAR
[72] https://www.ontarioca.gov/Parks
[73] https://www.ci.pomona.ca.us/index.php/residents/living/parks-recreation
[74] https://regis.maps.arcgis.com/apps/Shortlist/index.html?appid=8f5b91cb41df4bb48ba64231b319891d

The Community Services Department provides Upland citizens with quality services, recreational programs, and well-maintained parks. Within the Community Services Department, the Recreation Division provides recreational programs and community services and maintains first rate parks and recreational facilities. The Recreation Division is located at the Magnolia Recreation Center. The City provides 13 parks, with amenities such as amphitheaters, ballfields, barbeque areas, dog parks, fitness trails, picnic tables, playgrounds, skate parks, etc.

Library Services
Like parks, open space, recreational facilities and cultural opportunities, libraries contribute to the quality of life in a community. These community facilities can enhance a region's character as a good place to live and raise a family. In addition, a good library system contributes to the quality of educational opportunities in the area. Library facilities are provided throughout the Study Area by the cities and counties. Again, these are provided according to levels of service established through the respective jurisdictions General Plans.

XV.2 Impact Discussion

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

a. Fire Protection?

Project Category 1: Well Development and Monitoring Devices (PEs 1-9)
This Project Category includes the development of ASR, injection, pumping, groundwater level monitoring, and groundwater quality wells, associated well housing, as well as monitoring devices such as flow meters and extensometers. The proposed wells and monitoring devices will be installed throughout the Chino Basin.

The proposed OBMPU does not include construction of new homes or businesses that would result in a direct increase in population of create a substantial number of new jobs that would result in new residents of the Chino Basin area. Construction of the proposed wells and installation of the proposed monitoring devices would require temporary employment. It is unknown whether these employees would be drawn from within or outside of the Chino Basin area; however, as discussed under Population and Housing it is reasonable to assume that many employment opportunities would be filled by workers drawn from the Chino Basin area. This applies to the operation of the proposed wells and monitoring devices; operation of the proposed wells and monitoring devices is not forecast to require more than 5 additional permanent employees; however, the overall OBMPU facilities outlined below in the remaining Project Categories are anticipated to require 25 employees, for a total of 30 employees required for the overall facilities proposed as part of the OBMPU.

Operational activities associated with the proposed well development and monitoring devices could require fire department service in the unlikely event of a hazardous materials emergency or accident/medical emergency at a given site. However, should any treatment of the groundwater extracted by the proposed wells occur (addition of sodium hypochlorite, ammonia, etc.), a Hazardous Materials Business Plan (HMBP) may be required, though many of the water agencies within the Chino Basin have developed safety standards and operational procedures for safe transport and use of its operational and maintenance materials that are potentially hazardous, which comply with all federal, state and local regulations, thereby minimizing the potential for fire services. Although proposed well development may result in an additional demand on fire protection services, the implementation of the HMBP and/or continuation of adopted safety standards and procedures by agencies implementing the proposed OBMPU facilities would result in a nominal increase in service. Any OBMPU project requiring structures will be required to meet building codes, including those related to fire protection. The indirect increase in population and the use of hazardous materials associated with the well development would result in a nominal increase in fire services. As a result, no new fire facilities would be required. Therefore, no environmental effects would occur because construction of a new fire facility would not be required.

Project Category 2: Conveyance Facilities and Ancillary Facilities (PEs 2, 4-9)
This category includes the construction of 550,000 LF of new pipelines, booster pump stations, reservoirs and minor appurtenances whose number. The proposed conveyance facilities and ancillary facilities would be implemented throughout the entire Chino Basin.

The implementation of the proposed pipelines and ancillary facilities would not result is a substantial increase in permanent employees in support of the OBMPU operations. However, as stated under Project Category 1 above, there is a potential for a nominal number of new positions to be created as a result of OBMPU implementation, which is inclusive of operations of pipelines and ancillary facilities. This nominal increase in potential new residents within the Chino Basin may contribute to an increased demand for fire protection services. As a result, impacts would be the same as described above for Project Category 1.

Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands (PEs 2, 4-5, 8/9)
This Project Category includes the construction of 310 acres of new storage basins—several locations for which are within existing facilities, improvements to existing storage basin(s), 200 acres of flood MAR facilities, new MS4-compliance facilities, and expansion of the maximum storage space (safe storage capacity) to be used within the Chino Basin from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af between this range of storage. The specific locations of the storage basins are described in the Project Description above; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

The implementation of the proposed new storage basins, improvements to existing storage basins, new MS4-compliance facilities, and new flood MAR facilities would not result is a substantial increase in permanent employees in support of the OBMPU operations. However, as stated under Project Category 1 above, there is a potential for a nominal number of new positions to be created as a result of OBMPU implementation, which is inclusive of operations of proposed new storage basins, improvements to existing storage basins, new MS4-compliance facilities, and new flood MAR facilities. This nominal increase in potential new residents within the Chino Basin may contribute to an increased demand for fire protection services. As a result, impacts would be the same as described above for Project Category 1 and 2.

The proposed expansion of the safe storage capacity from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward would not result in any large, visible above ground impacts beyond those facilities outlined herein that would support this expansion. As such, no potential to substantially impact fire protection services exists.

Project Category 4: Desalters and Water Treatment Facilities (PEs 2, 4-9)
The projects proposed under this category are: upgrades at IEUA's existing Treatment Plants (discussed in IEUA's 2017 FMP PEIR), a new advanced water treatment plant (discussed in IEUA's 2017 FMP PEIR), improvements to the WFA Agua de Lejos Treatment Plant, upgrades to the Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities.

Construction of the proposed improvements at the WFA Agua de Lejos Treatment Plant, upgrades to Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities would require temporary employment to develop these facilities. It is unknown whether these employees would be drawn from within or outside of the Chino Basin area; however, as discussed under Population and Housing it is reasonable to assume that many employment opportunities would be filled by workers drawn from the Chino Basin area. This applies to the operation of the facilities outlined above; operation at new and existing facilities may require the employment of about 30 persons. Operational activities associated with the proposed facilities could require fire department service in the unlikely event of a hazardous materials emergency or accident/medical emergency at a given site. However, a HMBP may be required for new facilities, though, as stated above under Project Category 1, many of the water agencies within the Chino Basin have developed safety standards and operational procedures for safe transport and use of its operational and maintenance materials that are potentially hazardous, which comply with all federal, state and local regulations, thereby minimizing the potential for fire services. Although the proposed desalter and water treatment facility projects may result in an additional demand on fire protection services, the implementation of the HMBP and/or continuation of adopted safety standards and procedures by agencies implementing the proposed OBMPU facilities would result in a nominal increase in service. Therefore, impacts would be the same as described above for Project Category 1, 2, and 3.

Combined Project Categories

Level of Significance Before Mitigation: Less Than Significant

Mitigation Measures: None Required.

Level of Significance After Mitigation: Less Than Significant

b. Police Protection?

Project Category 1: Well Development and Monitoring Devices (PEs 1-9)
This Project Category includes the development of ASR, injection, pumping, groundwater level monitoring, and groundwater quality wells, associated well housing, as well as monitoring devices such as flow meters and extensometers. The proposed wells and monitoring devices will be installed throughout the Chino Basin.

Similar to the discussion under Fire Protection above, the development of wells and monitoring devices will not cause a significant demand for police protection services. Implementation of the OBMPU will result in direct physical change to existing land uses within the Chino Basin which will facilitate indirect changes in land use by contributing to an adequate water supply to meet long-term, ultimate growth and development projections within the Study Area; however, it is not forecast to change land uses or otherwise create activities that can increase demand for additional police protection services beyond that which is anticipated in the jurisdiction's General Plans. Operation of the proposed wells and monitoring devices is not forecast to require more than 5 additional permanent employees; however, the overall OBMPU facilities outlined below in the remaining Project Categories are anticipated to require 25 employees, for a total of 30 employees required for the overall facilities proposed as part of the OBMPU. Operational activities associated with the proposed well development and monitoring devices could require police department service in the unlikely event of an emergency or trespass at a given site. However, it is anticipated that all sites containing facilities associated with the proposed OBMPU would be fenced, which would minimize the future need for police protection from trespass. The Chino Basin area is currently served by police departments and agencies under authority of the various jurisdictions that comprise the Chino Basin as discussed under Environmental Setting above. Overall levels of police service will be increased based upon the future population growth and demands of the local agencies within the Chino Basin. Though a significant demand for police protection services is anticipated, mitigation is proposed to address trespass issues.

Project Category 2: Conveyance Facilities and Ancillary Facilities (PEs 2, 4-9)
This category includes the construction of 550,000 LF of new pipelines, booster pump stations, reservoirs and minor appurtenances whose number. The proposed conveyance and ancillary facilities would be implemented throughout the entire Chino Basin.

Pipelines and ancillary facilities would be installed primarily within or adjacent to public rights-of-way to the extent feasible. While pipelines would be located below ground, ancillary facilities would be installed above ground and would be fenced. As stated under Project Category 1 above, there is a potential for a nominal number of new positions to be created as a result of OBMPU implementation, which is inclusive of operations of pipelines and ancillary facilities. This nominal increase in potential new residents within the

Chino Basin may contribute to an increased demand for police protection services. As a result, impacts would be the same as described above for Project Category 1.

Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands (PEs 2, 4-5, 8/9)
This Project Category includes the construction of 310 acres of new storage basins—several locations for which are within existing facilities, improvements to existing storage basin(s), 200 acres of flood MAR facilities, new MS4-compliance facilities, and expansion of the maximum storage space (safe storage capacity) to be used within the Chino Basin from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af between this range of storage. The specific locations of the storage basins are described in the Project Description above; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

The implementation of the proposed new storage basins, improvements to existing storage basins, new MS4-compliance facilities, and new flood MAR facilities would not result is a substantial increase in permanent employees in support of the OBMPU operations. However, as stated under Project Category 1 above, there is a potential for a nominal number of new positions to be created as a result of OBMPU implementation, which is inclusive of operations of proposed new storage basins, improvements to existing storage basins, new MS4-compliance facilities, and new flood MAR facilities. This nominal increase in potential new residents within the Chino Basin may contribute to an increased demand for police protection services. As a result, impacts would be the same as described above for Project Category 1 and 2.

The proposed expansion of the safe storage capacity from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward would not result in any large, visible above ground impacts beyond those facilities outlined herein that would support this expansion. As such, no potential to substantially impact police protection services exists.

Project Category 4: Desalters and Water Treatment Facilities (PEs 2, 4-9)
The projects proposed under this category are: upgrades at IEUA's existing Treatment Plants (discussed in IEUA's 2017 FMP PEIR), a new advanced water treatment plant (discussed in IEUA's 2017 FMP PEIR), improvements to the WFA Agua de Lejos Treatment Plant, upgrades to the Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities. The police related impacts related to the facilities thoroughly analyzed as part of the IEUA's 2017 FMP PEIR, and will not be analyzed further as part of this Initial Study.

The implementation of the proposed improvements at WFA Agua de Lejos Treatment Plant, upgrades to Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities would not result is a substantial increase in permanent employees in support of the OBMPU operations. However, as stated under Project Category 1 above, there is a potential for a nominal number of new positions to be created as a result of OBMPU implementation, which is inclusive of operations of the proposed improvements at the WFA Agua de Lejos Treatment Plant, upgrades to Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities. This nominal increase in potential new residents within the Chino Basin may contribute to an increased demand for police protection services. As a result, impacts would be the same as described above for Project Category 1, 2, and 3.

Combined Project Categories

Level of Significance Before Mitigation: Potentially Significant

Mitigation Measures:

PS-1: ***OBMPU facilities shall be fenced or otherwise have access controlled to prevent illegal trespass to attractive nuisances, such as construction sites or recharge sites.***

Level of Significance After Mitigation: Less Than Significant

Implementation of Mitigation Measure **PS-1** above would minimize the potential for trespass that could exacerbate police protection services. As such, impacts are less than significant.

c. Schools?

Project Category 1: Well Development and Monitoring Devices (PEs 1-9)
This Project Category includes the development of ASR, injection, pumping, groundwater level monitoring, and groundwater quality wells, associated well housing, as well as monitoring devices such as flow meters and extensometers. The proposed wells and monitoring devices will be installed throughout the Chino Basin.

Similar to the discussion under Fire and Police Protection above, the development of wells and monitoring devices will not cause a significant demand for schools. Implementation of the OBMPU will result in direct physical change to existing land uses within the Chino Basin which will facilitate indirect changes in land use by contributing to an adequate water supply to meet long-term, ultimate growth and development projections within the Study Area. Implementation of the OBMPU is not forecast to change existing land uses or increase either the number of residential units located within the Study Area or the number of students generated from the Study Area beyond that which is anticipated in the local agency general plans. Operation of the proposed wells and monitoring devices is not forecast to require more than 5 additional permanent employees; however, the overall OBMPU facilities outlined below in the remaining Project Categories are anticipated to require 25 employees, for a total of 30 employees required for the overall facilities proposed as part of the OBMPU. School districts in the Chino Basin have adopted classroom loading standards (number of students per classroom) and collect development fees per square foot of residential, commercial and industrial development. Because the proposed project is not forecast to change land uses, or create activities that can increase demand for additional school capacity beyond that which is anticipated in the jurisdiction's General Plans, and because there are adopted standards and development fees are collected for new development, no potential for adverse impacts to schools is identified. No mitigation is required for schools on behalf of OBMPU projects.

Project Category 2: Conveyance Facilities and Ancillary Facilities (PEs 2, 4-9)
This category includes the construction of 550,000 LF of new pipelines, booster pump stations, reservoirs and minor appurtenances whose number. The proposed conveyance and ancillary facilities would be implemented throughout the entire Chino Basin.

Pipelines and ancillary facilities would be installed primarily within or adjacent to public rights-of-way to the extent feasible. While pipelines would be located below ground, ancillary facilities would be installed above ground and would be fenced. As stated under Project Category 1 above, there is a potential for a nominal number of new positions to be created as a result of OBMPU implementation, which is inclusive of operations of pipelines and ancillary facilities. This nominal increase in potential new residents within the Chino Basin may contribute to an increased demand for schools. As a result, impacts would be the same as described above for Project Category 1.

Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands (PEs 2, 4-5, 8/9)
This Project Category includes the construction of 310 acres of new storage basins—several locations for which are within existing facilities, improvements to existing storage basin(s), 200 acres of flood MAR facilities, new MS4-compliance facilities, and expansion of the maximum storage space (safe storage capacity) to be used within the Chino Basin from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af between this range of storage. The specific locations of the storage basins are described in the Project Description above; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

The implementation of the proposed new storage basins, improvements to existing storage basins, new MS4-compliance facilities, and new flood MAR facilities would not result is a substantial increase in permanent employees in support of the OBMPU operations. However, as stated under Project Category 1 above, there is a potential for a nominal number of new positions to be created as a result of OBMPU implementation, which is inclusive of operations of proposed new storage basins, improvements to existing storage basins, new MS4-compliance facilities, and new flood MAR facilities. This nominal increase in potential new residents within the Chino Basin may contribute to an increased demand for schools. As a result, impacts would be the same as described above for Project Category 1 and 2.

The proposed expansion of the safe storage capacity from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward would not result in any large, visible above ground impacts beyond those facilities outlined herein that would support this expansion. As such, no potential to substantially impact schools and classroom capacities exists.

Project Category 4: Desalters and Water Treatment Facilities (PEs 2, 4-9)
The projects proposed under this category are: upgrades at IEUA's existing Treatment Plants (discussed in IEUA's 2017 FMP PEIR), a new advanced water treatment plant (discussed in IEUA's 2017 FMP PEIR), improvements to the WFA Agua de Lejos Treatment Plant, upgrades to the Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities. The schools related impacts related to the facilities thoroughly analyzed as part of the IEUA's 2017 FMP PEIR, and will not be analyzed further as part of this Initial Study.

The implementation of the proposed improvements at WFA Agua de Lejos Treatment Plant, upgrades to Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities would not result is a substantial increase in permanent employees in support of the OBMPU operations. However, as stated under Project Category 1 above, there is a potential for a nominal number of new positions to be created as a result of OBMPU implementation, which is inclusive of operations of the proposed improvements at the WFA Agua de Lejos Treatment Plant, upgrades to Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities. This nominal increase in potential new residents within the Chino Basin may contribute to an increased demand for schools. As a result, impacts would be the same as described above for Project Category 1, 2, and 3.

Combined Project Categories

Level of Significance Before Mitigation: Less Than Significant

Mitigation Measures: None Required.

Level of Significance After Mitigation: Less Than Significant

d. Parks/Recreation?

Project Category 1: Well Development and Monitoring Devices (PEs 1-9)
This Project Category includes the development of ASR, injection, pumping, groundwater level monitoring, and groundwater quality wells, associated well housing, as well as monitoring devices such as flow meters and extensometers. The proposed wells and monitoring devices will be installed throughout the Chino Basin.

The development of wells and monitoring devices will not cause a significant demand for parks and recreational facilities; however, there is a potential that a proposed well or other OBMPU related facility could be located within parks or facilities designated for residential use. Construction and staging areas may result in the temporary closure of parks or portions of parks. However, several parks in the Chino Basin area would be available for use. This increased use of other parks would be temporary, during construction only. Once construction is completed, parks would return to serve their original purpose, with only slightly less parkland area available for use. In addition to well development within existing parks, there is a potential for wells or other OBMPU facilities to be developed within a vacant site designated for park use, which would effectively minimize available designated parkland within the Chino Basin. As such, mitigation is provided below to ensure that, for OBMPU facilities located within vacant land designated for park uses, or OBMPU facilities larger than one acre in size within existing park facilities, additional parkland is developed to supplement the loss of this parkland or recreation facility.

Once in operation, the proposed wells and monitoring devices would not directly increase the population as discussed under Police Protection, Fire Protection, and Schools, though there is a potential for this development to result in nominal indirect population growth. Overall demand for parks and recreation facilities will be increased based on the future population-based demands of the local agencies within the Chino Basin. The OBMPU is not anticipated to create activities that can increase demand for additional park and recreation facilities beyond that which is anticipated in the jurisdiction's General Plans, and because there are adopted standards and development fees are collected for new development that are directed towards parks and recreation facilities, no other potential for adverse impacts to parks and recreation facilities are identified beyond those addressed through the mitigation provided below.

Project Category 2: Conveyance Facilities and Ancillary Facilities (PEs 2, 4-9)
This category includes the construction of 550,000 LF of new pipelines, booster pump stations, reservoirs and minor appurtenances whose number. The proposed conveyance and ancillary facilities would be implemented throughout the entire Chino Basin.

Pipelines and ancillary facilities would be installed primarily within or adjacent to public rights-of-way to the extent feasible. While pipelines would be located below ground, ancillary facilities would be installed above ground and would be fenced. As stated under Project Category 1 above, there is a potential for a nominal number of new positions to be created as a result of OBMPU implementation, which is inclusive of operations of pipelines and ancillary facilities. This nominal increase in potential new residents within the Chino Basin may contribute to an increased demand for parks and recreation facilities. Furthermore, as discussed under Project Category 1 above, there is a potential for the development of OBMPU related facilities to impact the availability of parkland; mitigation is required to address this issue. As a result, impacts would be the same as described above for Project Category 1.

Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands (PEs 2, 4-5, 8/9)
This Project Category includes the construction of 310 acres of new storage basins—several locations for which are within existing facilities, improvements to existing storage basin(s), 200 acres of flood MAR facilities, new MS4-compliance facilities, and expansion of the maximum storage space (safe storage capacity) to be used within the Chino Basin from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af between this range of storage. The specific locations of the storage basins are described in the Project Description above; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

The implementation of the proposed new storage basins, improvements to existing storage basins, new MS4-compliance facilities, and new flood MAR facilities would not result is a substantial increase in permanent employees in support of the OBMPU operations. However, as stated under Project Category 1 above, there is a potential for a nominal number of new positions to be created as a result of OBMPU implementation, which is inclusive of operations of proposed new storage basins, improvements to existing storage basins, new MS4-compliance facilities, and new flood MAR facilities. This nominal increase in potential new residents within the Chino Basin may contribute to an increased demand for parks and recreation facilities. Furthermore, as discussed under Project Category 1 above, there is a potential for the development of OBMPU related facilities to impact the availability of parkland; mitigation is required to address this issue. As a result, impacts would be the same as described above for Project Category 1 and 2.

The proposed expansion of the safe storage capacity from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward would not result in any large, visible above ground impacts beyond those facilities outlined herein that would support this expansion. As such, no potential to substantially impact parks or recreation facilities exists.

Project Category 4: Desalters and Water Treatment Facilities (PEs 2, 4-9)
The projects proposed under this category are: upgrades at IEUA's existing Treatment Plants (discussed in IEUA's 2017 FMP PEIR), a new advanced water treatment plant (discussed in IEUA's 2017 FMP PEIR), improvements to the WFA Agua de Lejos Treatment Plant, upgrades to the Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities. The park and recreation related impacts related to the facilities thoroughly analyzed as part of the IEUA's 2017 FMP PEIR, and will not be analyzed further as part of this Initial Study.

The implementation of the proposed improvements at WFA Agua de Lejos Treatment Plant, upgrades to Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities would not result is a substantial increase in permanent employees in support of the OBMPU operations. However, as stated under Project Category 1 above, there is a potential for a nominal number of new positions to be created as a result of OBMPU implementation, which is inclusive of operations of the proposed improvements at the WFA Agua de Lejos Treatment Plant, upgrades to Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities. This nominal increase in potential new residents within the Chino Basin may contribute to an increased demand for parks and recreation facilities. Furthermore, as discussed under Project Category 1 above, there is a potential for the development of OBMPU related facilities to impact the availability of parkland; mitigation is required to address this issue. As a result, impacts would be the same as described above for Project Category 1, 2, and 3.

Combined Project Categories

Level of Significance Before Mitigation: Potentially Significant

Mitigation Measures:

PS-2: ***OBMPU facilities proposed to be located within vacant parkland or OBMPU facilities proposed to be located within existing park or recreation facilities that would require more than one acre of disturbance shall be either (1) Relocated to avoid significant impacts to parkland or (2) Shall provide supplemental parkland within the corresponding jurisdiction equal or greater to the amount of parkland or recreation facilities lost as a result of implementation of the OBMPU facility.***

Level of Significance After Mitigation: Less Than Significant

Implementation of Mitigation Measure **PS-2** above would minimize the potential for loss of park or recreational facilities as a result of OBMPU projects located within facilities designated for such uses. As such, impacts are less than significant.

e. Other Public Services/Libraries?

Project Category 1: Well Development and Monitoring Devices (PEs 1-9)
This Project Category includes the development of ASR, injection, pumping, groundwater level monitoring, and groundwater quality wells, associated well housing, as well as monitoring devices such as flow meters and extensometers. The proposed wells and monitoring devices will be installed throughout the Chino Basin.

Similar to the discussion under Fire and Police Protection services above, the development of wells and monitoring devices will not cause a significant demand for or increase in library services. Implementation of the OBMPU will result in direct physical change to existing land uses within the Chino Basin which will facilitate indirect changes in land use by contributing to an adequate water supply to meet long-term, ultimate growth and development projections within the Study Area; however, it is not forecast to change land uses or otherwise create activities that can increase demand for or increase in library services beyond that which is anticipated in the jurisdiction's General Plans. Operation of the proposed wells and monitoring devices is not forecast to require more than 5 additional permanent employees; however, the overall OBMPU facilities outlined below in the remaining Project Categories are anticipated to require 25 employees, for a total of 30 employees required for the overall facilities proposed as part of the OBMPU. Implementation of the OBMPU will result in direct physical change to existing land uses within the Chino Basin which will facilitate indirect changes in land use by contributing to an adequate water supply to meet long-term, ultimate growth and development projections within the Study Area; however, it is not forecast to change land uses or otherwise create activities that can increase demand for additional library capacity services beyond that which is anticipated in local agency general plans. Libraries are currently provided by the Counties and local agencies under authority of the various jurisdictions that comprise the Chino Basin. OBMPU projects will not produce any direct demand for library capacity or contribute to indirect demand for such services. Mitigation is not required to reduce potential library capacity impacts to a level of less than significant since none is forecast to occur. Overall levels of library service will also be increased based upon the future population based the demands of the local agencies. No potential for any significant demand for library services is identified and no mitigation is required.

Project Category 2: Conveyance Facilities and Ancillary Facilities (PEs 2, 4-9)
This category includes the construction of 550,000 LF of new pipelines, booster pump stations, reservoirs and minor appurtenances whose number. The proposed conveyance and ancillary facilities would be implemented throughout the entire Chino Basin.

Pipelines and ancillary facilities would be installed primarily within or adjacent to public rights-of-way to the extent feasible. While pipelines would be located below ground, ancillary facilities would be installed above ground and would be fenced. As stated under Project Category 1 above, there is a potential for a nominal number of new positions to be created as a result of OBMPU implementation, which is inclusive of operations of pipelines and ancillary facilities. This nominal increase in potential new residents within the Chino Basin may contribute to an increased demand for or increase in library services. As a result, impacts would be the same as described above for Project Category 1.

Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands (PEs 2, 4-5, 8/9)
This Project Category includes the construction of 310 acres of new storage basins—several locations for which are within existing facilities, improvements to existing storage basin(s), 200 acres of flood MAR facilities, new MS4-compliance facilities, and expansion of the maximum storage space (safe storage capacity) to be used within the Chino Basin from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af between this range of storage. The specific locations of the storage basins are described in the Project Description above; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

The implementation of the proposed new storage basins, improvements to existing storage basins, new MS4-compliance facilities, and new flood MAR facilities would not result is a substantial increase in permanent employees in support of the OBMPU operations. However, as stated under Project Category 1 above, there is a potential for a nominal number of new positions to be created as a result of OBMPU implementation, which is inclusive of operations of proposed new storage basins, improvements to existing storage basins, new MS4-compliance facilities, and new flood MAR facilities. This nominal increase in potential new residents within the Chino Basin may contribute to an increased demand for or increase in library services. As a result, impacts would be the same as described above for Project Category 1 and 2.

The proposed expansion of the safe storage capacity from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward would not result in any large, visible above ground impacts beyond those facilities outlined herein that would support this expansion. As such, no potential to substantially impact library services exists.

Project Category 4: Desalters and Water Treatment Facilities (PEs 2, 4-9)
The projects proposed under this category are: upgrades at IEUA's existing Treatment Plants (discussed in IEUA's 2017 FMP PEIR), a new advanced water treatment plant (discussed in IEUA's 2017 FMP PEIR),

improvements to the WFA Agua de Lejos Treatment Plant, upgrades to the Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities. The library service-related impacts related to the facilities thoroughly analyzed as part of the IEUA's 2017 FMP PEIR, and will not be analyzed further as part of this Initial Study.

The implementation of the proposed improvements at WFA Agua de Lejos Treatment Plant, upgrades to Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities would not result is a substantial increase in permanent employees in support of the OBMPU operations. However, as stated under Project Category 1 above, there is a potential for a nominal number of new positions to be created as a result of OBMPU implementation, which is inclusive of operations of the proposed improvements at the WFA Agua de Lejos Treatment Plant, upgrades to Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities. This nominal increase in potential new residents within the Chino Basin may contribute to an increased demand for or increase in library services. As a result, impacts would be the same as described above for Project Category 1, 2, and 3.

Combined Project Categories

Level of Significance Before Mitigation: Less Than Significant

Mitigation Measures: None Required.

Level of Significance After Mitigation: Less Than Significant.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
XVI. RECREATION:				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☒	☐	☐
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☒	☐	☐

SUBSTANTIATION

XVI.1 Environmental Setting

Please refer to the discussion under Parks and Recreation under Public Services XV.1 Environmental Setting for a description of the recreational facilities within the Chino Basin.

XVI.2 Impact Discussion

a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

Combined Project Categories
Please refer to the discussion under XV(d) above. Analysis that determined whether the OBMPU would increase the use of existing neighborhood and regional parks or other recreational facilities and physical deterioration thereof is provided under XV(d) above. The significance determination was less than significant with the implementation of Mitigation Measure **PS-2**.

Level of Significance Before Mitigation: Potentially Significant

Mitigation Measures: MM **PS-2,** repeated from Section XV, Public Services above, is required.

PS-2: ***OBMPU facilities proposed to be located within vacant parkland or OBMPU facilities proposed to be located within existing park or recreation facilities that would require more than one acre of disturbance shall be either (1) Relocated to avoid significant impacts to parkland or (2). Shall provide supplemental parkland within the corresponding jurisdiction equal or greater to the amount of parkland or recreation facilities lost as a result of implementation of the OBMPU facility.***

Level of Significance After Mitigation: Less Than Significant

Implementation of Mitigation Measure **PS-2** above would minimize the potential for loss of park or recreational facilities as a result of OBMPU projects located within facilities designated for such uses. As such, impacts are less than significant.

b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

Project Category 1: Well Development and Monitoring Devices (PEs 1-9)
This Project Category includes the development of ASR, injection, pumping, groundwater level monitoring, and groundwater quality wells, associated well housing, as well as monitoring devices such as flow meters

and extensometers. The proposed wells and monitoring devices will be installed throughout the Chino Basin.

The development of wells and monitoring devices will not involve the construction or expansion of recreational facilities. There is a potential that a proposed well or other OBMPU related facility could be located within parks or facilities designated for residential use. Depending on the area required for the well development (anticipated to be less than 0.5 acre), an individual project could result in the removal of all or a portion of a park or recreational facility. The removal of a facility could require the construction of new park or recreational facilities elsewhere to accommodate for the loss of the existing recreational facility. As such, mitigation is required to ensure that, should loss of recreation or park facilities occur, replacement occurs resulting in impacts to recreational facilities are minimized.

Project Category 2: Conveyance Facilities and Ancillary Facilities (PEs 2, 4-9)
This category includes the construction of 550,000 LF of new pipelines, booster pump stations, reservoirs and minor appurtenances whose number. The proposed conveyance and ancillary facilities would be implemented throughout the entire Chino Basin.

Impacts would be the same as described above for Project Category 1.

Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands (PEs 2, 4-5, 8/9)
This Project Category includes the construction of 310 acres of new storage basins—several locations for which are within existing facilities, improvements to existing storage basin(s), 200 acres of flood MAR facilities, new MS4-compliance facilities, and expansion of the maximum storage space (safe storage capacity) to be used within the Chino Basin from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af between this range of storage. The specific locations of the storage basins are described in the Project Description above; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

Storage facilities within existing facilities and storage facilities at the known sites identified in the Project Description would have no potential to impact existing parks or recreational facilities necessitating construction or replacement because none of these sites contains park or recreational facilities.

For flood MAR facilities and new MS4-compliance facilities, impacts would be the same as described above for Project Category 1 and 2, because the location of such facilities is presently unknown.

The proposed expansion of the safe storage capacity from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward would not result in any large, visible above ground impacts beyond those facilities outlined herein that would support this expansion. As such, no potential to substantially impact parks or recreation facilities exists.

Project Category 4: Desalters and Water Treatment Facilities (PEs 2, 4-9)
The projects proposed under this category are: upgrades at IEUA's existing Treatment Plants (discussed in IEUA's 2017 FMP PEIR), a new advanced water treatment plant (discussed in IEUA's 2017 FMP PEIR), improvements to the WFA Agua de Lejos Treatment Plant, upgrades to the Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities. The recreation related impacts related to the facilities thoroughly analyzed as part of the IEUA's 2017 FMP PEIR, and will not be analyzed further as part of this Initial Study.

Improvements at the existing Chino Desalters, improvements to existing groundwater treatment facilities, and at the WFA Agua de Lejos Treatment Plant would occur within existing facilities, and as such, are not designated for park and/or recreation, and as such, would have no potential to impact existing parks or recreational facilities necessitating construction or replacement because none of these sites contains park or recreational facilities.

For new groundwater treatment facilities at or near well sites and at regionally located sites, impacts would be the same as described above for Project Category 1, 2, and 3.

Combined Project Categories

Level of Significance Before Mitigation: Potentially Significant

Mitigation Measures: **PS-2** outlined under issue XV(d) above.

REC-1: ***The Watermaster or Implementing Agency shall prepare subsequent CEQA documentation for any Park or Recreation facilities required to be developed as part of implementation of mitigation measure PS-2—i.e., in the event an OBMPU Facility would be result in loss of parkland or recreation facilities.***

Level of Significance After Mitigation: Less Than Significant

Implementation of Mitigation Measure **PS-2** above would minimize the potential for loss of park or recreational facilities as a result of OBMPU projects located within facilities designated for such uses. As such, impacts are less than significant. Implementation of Mitigation Measure **REC-1** would ensure that, should construction of recreation or park facilities be required as a part of the OBMPU, a subsequent CEQA determination will be prepared to ensure that impacts are appropriately assessed and mitigated.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
XVII. TRANSPORTATION: Would the project:				
a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☒	☐
b) Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	☐	☒
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous inter-sections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
d) Result in inadequate emergency access?	☐	☒	☐	☐

SUBSTANTIATION

This section describes the existing traffic and transportation system, as well as applicable regulatory framework, potential impacts associated with implementation of the proposed OBMPU, and mitigation measures to reduce those impacts to a level of less than significant.

XVII.1 Circulation System Setting

The Chino Basin is located in southern California within the west end of San Bernardino Valley, just east of Los Angeles County, and northeast of Orange County. The Basin extends barely into the northwest of Riverside County, west of the Santa Ana River. The service area consists of about 250 square miles and includes the cities of Upland, Montclair, Ontario, Fontana, Chino, Chino Hills, and Rancho Cucamonga in San Bernardino County. Portions of the cities of Eastvale and Jurupa Valley are in the Chino Basin, as well as areas of unincorporated San Bernardino and Riverside Counties.

Freeways, arterial highways, and local streets serve as the dominant system of transportation within the Chino Basin. In addition to automobile travel, other transportation systems within the counties include mass transit (bus and passenger train systems), bicycle routes, rail service, pedestrian facilities networks and air transportation. The discussions in the following sections are generally focused on the regional transportation system but also include local transportation/circulation system elements in the Basin. The traffic analysis focuses on the unincorporated County and the cities of Chino, Chino Hills, Fontana, Montclair, Ontario, Rancho Cucamonga, Upland, Eastvale and Jurupa Hills.

The Chino Basin is primarily located in San Bernardino County which currently contains about 10,000 miles of roadways, which includes interstate freeways, U.S. highways, state highways and local roadways (County of San Bernardino, 2007b). The roadways described below (regional and local) are located within the San Bernardino Valley Region of the County, and many of the roadways extend into western Riverside County and the cities of Eastvale and Jurupa Valley. The roadways referenced in the following text could be affected by commute trips by facilities workers (construction and operations) and truck trips (construction and operations) associated with the proposed project.

Regional Roadways

Interstate 15 (I-15) – I-15 extends north from the San Diego metropolitan area through the western portions of San Bernardino and Riverside Counties and continues in a north-easterly direction to Las Vegas, Nevada and beyond.

Interstate 215 (I-215) – I-215 provides an alternative route to I-15 through San Bernardino County and Riverside County by splitting from I-15 near Devore and reconnecting with the I-15 south in the City of Murrieta.

Interstate 10 (I-10) – I-10 travels east-west across the southern edge of Valley Region in San Bernardino County. This facility provides access to Los Angeles to the west and Arizona and beyond to the east.

Interstate 210 (I-210) – I-210 begins at an interchange with the Golden State Freeway (I-5) in Los Angeles County and continues east across the Valley region to its current terminus at an interchange with the I-10 in Redlands, California.

State Route 60 (SR-60) – SR-60 is an east-west route that extends across the Chino Basin in both counties. SR-60 provides the Inland Empire with access to the Los Angeles metropolitan area to the west and Riverside County to the east.

State Route 83 (SR-83) – SR-83 is a north-south arterial that travels through the Valley Region of San Bernardino County. This roadway provides direct connections between The Foothill Freeway (I-210), Foothill Boulevard (SR-66), the San Bernardino Freeway (I-10), the Pomona Freeway (SR-60) and the Chino Valley Freeway (SR-71).

State Route 71 (SR-71) – SR-71 travels southeast from the I-10/I-210 Interchange in San Dimas to the Riverside Freeway (SR-91) in Corona. This facility serves as a major commuter route between the Inland Empire and Orange County.

State Route 66 (SR-66) – In San Bernardino County, SR-66 begins as Foothill Boulevard at the Los Angeles County line and is classified as a state highway (US 66/SR-66). It extends eastward through the cities of Upland, Rancho Cucamonga, unincorporated San Bernardino County, Fontana and Rialto.

Major Roadways

Basin – East/West Facilities

16th Street / Base Line Road – This primary two- to six-lane arterial extends across the entire Valley Region of San Bernardino County. It operates as an east-west connector for the cities of Upland, Rancho Cucamonga, Rialto, San Bernardino and Highland.

4th Street – This four- to six-lane roadway is located in the City of Ontario. It operates as a primary arterial and is a major east-west link across the city. This facility extends both to the east and west outside the City of Ontario as San Bernardino Avenue.

Arrow Route – This two- to four-lane roadway is a major connector that provides access to several communities within the Valley Region of San Bernardino County. It begins at the Los Angeles County line in Upland and extends through Rancho Cucamonga, unincorporated San Bernardino County, Fontana and ends in Rialto.

Edison Avenue – This four- to six-lane roadway begins just east of SR-71 in the city of Chino and extend eastward through the city of Ontario. It is classified as a primary arterial.

Grand Avenue – This four- to six-lane primary arterial extends from the boundary between the cities of Chino and Chino Hills westward through Chino Hills into Los Angeles County.

Highland Avenue – Highland Avenue passes through the cities of Rancho Cucamonga, Fontana, Rialto, San Bernardino and Highland. This two- to four-lane roadway originates as a secondary arterial at Amethyst Street in the City of Rancho Cucamonga and continues east to Milliken Avenue.

Merrill Avenue / Mill Street –This two- to four-lane secondary arterial originates at Cherry Avenue in unincorporated San Bernardino County west of the City of Fontana.

San Bernardino Avenue / 4th Street – This two- to four-lane roadway extends across a large portion of San Bernardino County and travels through the cities of Montclair, Ontario (as 4th Street), Rancho Cucamonga, unincorporated San Bernardino County, Fontana and Rialto before ending in the City of Colton.

Valley Boulevard – This four-lane primary arterial runs parallel to I-10 to the north. Beginning just east of Etiwanda Avenue, this roadway continues east through unincorporated San Bernardino County and the Cities of Fontana and Rialto before terminating at Mount Vernon Avenue in the City of Colton.

Mission Boulevard – This is a four-land primary arterial that extends across the Chino Basin from Pomona east through Jurupa Valley where it transitions to become Van Buren Avenue.

Riverside Drive – This roadway varies between a four- and two-lane arterial that extends across the Chino Basin from SH 71 on the west through Eastvale and Jurupa Valley, terminating at Etiwanda Avenue in the latter City.

Basin – North/South Facilities

Alder Avenue – Alder Avenue is a two- to four-lane north-south connector that provides access along the eastern boundary of the City of Fontana. This facility is a secondary arterial that extends from Baseline Road to San Bernardino Avenue. Continuing south into unincorporated San Bernardino County, this roadway becomes a residential street.

Archibald Avenue – This four- to six-lane primary arterial extends from Hillside Road in the City of Rancho Cucamonga, through the City of Ontario and into Riverside County. This facility is a major north-south corridor across San Bernardino County that provides access to both I-210, I-10 and SR-60 as well as Ontario International Airport.

Central Avenue – This four- to six-lane roadway travels through the cities of Upland, unincorporated San Bernardino County, Montclair and Chino along the western edge of San Bernardino County. Beginning at Foothill Boulevard just south of Cable Airport, this facility provides a north-south connection between I-10, SR-60 and SR-71.

Cherry Avenue – This four- to six-lane roadway is located almost entirely within the City of Fontana with a portion travelling through unincorporated San Bernardino County. This roadway extends from north of I-15 south to Slover Avenue as a primary arterial. From Slover Avenue to Mulberry Avenue, it is reduced to a secondary arterial. This facility provides a connection between I-210 and I-10 and the I-10 to SH 60.

Citrus Avenue – Citrus Avenue is a two- to four-lane roadway located in the City of Fontana that extends from just south of I-15 at Duncan Canyon Road to Slover Avenue as a primary arterial. From Slover Avenue, this roadway becomes a secondary arterial and continues to Jurupa Avenue.

Etiwanda Avenue – Etiwanda Avenue is a four- to six-lane primary arterial located in the cities of Rancho Cucamonga, Ontario, Fontana and unincorporated San Bernardino County. This roadway provides direct access to I-10 and SR-60 in Riverside County.

Grove Avenue – This roadway is a four-lane secondary arterial that extends from Foothill Boulevard in the City of Upland south to the Chino Airport in the City of Ontario. South of the airport, it continues to Pine Avenue in unincorporated San Bernardino County.

Haven Avenue – Haven Avenue is a four- to eight-lane primary arterial located in the City of Rancho Cucamonga and extending through the City of Ontario. This roadway provides direct access to I-210, I-10 and SR-60.

Monte Vista Avenue – Monte Vista Avenue is a four- to six-lane roadway that begins at SR-210 in Los Angeles County and travels south through the cities of Montclair and Chino. Between I-210 and I-10, this roadway is classified as a primary arterial.

Mountain Avenue – The northern terminus of this two- to six-lane roadway is with Mt. Baldy Road at the Los Angeles County line. From here, Mountain Avenue crosses a portion of unincorporated San Bernardino County and the cities of Upland and Ontario before ending at Edison Avenue in the City of Chino. This facility is classified as a primary arterial except for the segment between 19th Street and 16th Street, which is classified as a state highway (SR-30).

Sierra Avenue – Sierra Avenue is a two- to six-lane major north-south corridor through the Valley Region of San Bernardino County. This roadway begins just north of I-15 in the extreme northern portion of the City of Fontana. It is a primary arterial and has interchanges with I-15, I-210 and I-10 before it terminates just southeast of Armstrong Road in Riverside County.

Public Transportation

The public transit agencies that serve the Valley Region of the County include Omnitrans, Foothill Transit Agency, Valley Transportation Service, which is specifically dedicated to improving mobility for senior, disabled and low-income residents within San Bernardino Valley (SANBAG, 2016a), and the Riverside Transit Authority bus system in Riverside County. These public transit agencies provide bus services with a wide variety of bus routes across the county, as well as into adjacent jurisdictions. In addition to the local transit agencies, Greyhound offers regional and nationwide bus service to County residents with seven stations located throughout the county boundaries and offers connections to location such as Los Angeles, Las Vegas and Phoenix. SANBAG also operates two programs for individuals and one for employers through which commuters can receive financial incentives by participating in a rideshare program. Metrolink provides east-west passenger train service in the Valley Region, with both at-grade and grade-separated crossings of the tracks that are approximately midway between I-10 and I-210.

Bicycle and Pedestrian Transportation

The County's existing bicycle and pedestrian facilities are outlined in the Non-Motorized Transportation Plan (NMTP) prepared by SANBAG in 2015. The NMTP outlines the type of bicycle and pedestrian facilities that currently exist within the county, as well as includes planning efforts and recommendations for future facilities. In regards to bicycle facilities, the County includes three classes of bikeways: Class I (Shared Use Path or Bike Path), Class II (Designated Bike Lane), and Class III (Designated Bike Route). While there are numerous bikeways of all three classes across the County, the NMTP designates trails that bicyclists can utilize, which includes the Pacific Electric Trail, Santa Ana River Trail, Flood Control Channels, Power Line Corridors, Cajon Pass Connector – Route 66 Heritage Trail, and Orange Blossom Rail Trail. In regards to pedestrian facilities, there are many designated trails and sidewalk systems that can be utilized by pedestrians within the County.

Truck Routes

Cities often develop a truck route plan, which designates truck routes to provide contractors with the preferred travel roadways to and from connecting local roadways. For example, the cities of Upland, Rancho Cucamonga, Fontana, Montclair, Ontario and Chino have such plans.

XVII.2 Regulatory Framework

State

California Department of Transportation

California Department of Transportation (Caltrans) is responsible for planning, designing, building, operating, and maintaining California's transportation system. Caltrans sets standards, policies, and strategic plans that aim to do the following: 1) provide the safest transportation system for users and workers; 2) maximize transportation system performance and accessibility; 3) efficiently deliver quality transportation projects and services; 4) preserve and enhance California's resources and assets; and 5) promote quality service. Caltrans has the discretionary authority to issue special permits for the use of State highways for other than normal transportation purposes. Caltrans also reviews all requests from utility companies, developers, volunteers, nonprofit organizations, and others desiring to conduct various activities within the State Highway right-of-way.

The following Caltrans regulations apply to potential transportation and traffic impacts associated with the proposed project.

California Vehicle Code (CVC), division 15, chapters 1 through 5 (Size, Weight, and Load). Includes regulations pertaining to licensing, size, weight, and load of vehicles operated on highways.

California Street and Highway Code Sections 660-711. Caltrans encroachment regulations would apply to construction of the proposed pipelines within and immediately adjacent to roadways, as well as the transportation of construction crews and construction equipment throughout the project area. Caltrans requires that permits be obtained for transportation of oversized loads, certain materials, and construction-related traffic disturbance.

Regional

Southern California Association of Governments
The Southern California Association of Governments (SCAG) is the designated Metropolitan Planning Organization for Imperial, Los Angeles, Orange, Riverside, Ventura and San Bernardino Counties. On April 7, 2016, SCAG adopted its 2016 Regional Transportation Plan/Sustainable Communities Strategy (2016 RTP/SCS). The 2016 RTP/SCS presents the transportation vision for the SCAG region through the year 2040 and provides a long-term investment framework for addressing the region's transportation and related challenges. The 2016 RTP/SCS focuses on maintaining and improving the transportation system through a balanced approach and considers economic, environmental, public health, improved coordination between land-use decisions and transportation investments, and strategic expansion of the system to accommodate future growth (SCAG, 2016).

San Bernardino Associated Governments
San Bernardino Associated Governments (SANBAG) is the council of governments and transportation planning agency for San Bernardino County. SANBAG is responsible for cooperative regional planning and furthering an efficient multi-modal transportation system countywide. SANBAG serves the 2.1 million residents of San Bernardino County.

As the County Transportation Commission, SANBAG supports freeway construction projects, regional and local road improvements, train and bus transportation, railroad crossings, call boxes, ridesharing, congestion management efforts and long-term planning studies. SANBAG administers Measure I, the half-cent transportation sales tax approved by county voters in 1989 (SANBAG, 2015).

San Bernardino County Congestion Management Program
The San Bernardino County Congestion Management Program (CMP) was created in June 1990 as a provision of Proposition 111 (SANBAG, 2016b). Under this proposition, urbanized areas with populations of more than 50,000 residents would be required to undertake a congestion management program that was adopted by a designated Congestion Management Agency (CMA); SANBAG is the designated CMA for San Bernardino County as appointed by the County Board of Supervisors.

The CMP's level of service (LOS) standard requires all designated CMP segments to operate at LOS E or better, with the exception of the following roadways within the project area, for which the standard is LOS F:

A. Freeways
   I-10 Westbound, Milliken Avenue to Central Avenue
   I-10 Westbound, Waterman Avenue to Eastbound SR-30
   I-10 Eastbound, Central Avenue to Milliken Avenue
   I-10 Eastbound, Northbound I-15 to Southbound I-15
   I-10 Eastbound, Southbound Waterman Avenue to California Street

SR-60 Westbound, Milliken Avenue to Central Avenue
SR-60 Eastbound, Central Avenue to Milliken Avenue
I-215 Northbound, Inland Center Drive to SR-30 / Highland Avenue

B. Valley East/West Arterial Segments
Foothill Boulevard between Mountain Avenue and Archibald Avenue

C. Valley North/South Arterial Segments
Citrus Avenue between Slover Avenue and Valley Boulevard
Cedar Avenue between Slover Avenue and Valley Boulevard
Mountain View Avenue between Barton Road and Redlands Boulevard
Mountain Avenue between Mission Boulevard and Holt Avenue

Southern California Regional Rail Authority
The Southern California Regional Rail Authority (SCCRA) is a regional Joint Powers Authority. Its purpose is to plan, design, construct, operate, and maintain regional commuter rail lines serving the counties of Los Angeles, Orange, Riverside, San Bernardino, and Ventura. The SCRRA consists of the five county transportation agencies identified above, including the San Bernardino Associated Governments. SCRRA operates on conventional railroad track and right-of-way (ROW), which are owned either by one of the county transportation agencies or by a private freight railroad company that has conveyed operating rights to SCRRA. The design, operation, and maintenance of the SCRRA system are governed by Federal Railroad Administration (FRA) regulations and California Public Utilities Commission (CPUC) General Orders (GOs) (SCRRA, 2014)

County and City Land Use Regulations and Ordinances
Local regulations and ordinances vary widely in the Chino Basin. Traffic-related policies included in General Plans typically concern traffic resulting from project operation rather than project construction. However, some local jurisdictions incorporate restrictions to their General Plans that pertain to construction activities in or through their jurisdictional areas, such as assigning truck traffic routes or requiring the development of Traffic Control Plans.

XVII.3 Impacts and Mitigation Measures

<u>Significance Criteria</u>
For the purposes of this EIR and consistent with Appendix G of the *CEQA Guidelines*, the proposed project would have a significant impact on transportation if it would:

a. *Conflict with an applicable plan, ordinance or policy establishing measure of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit; (see Impact 3.14-1 below)*
b. *Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards and travel demand measures, or other standards established by the county congestion management agency for designated road or highways; (see discussion immediately below)*
c. *Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risk; (see discussion immediately below and see Impact 3.7-5 in Section 3.7, Hazards and Hazardous Materials)*
d. *Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment); (see Impact 3.14-2 below)*
e. *Result in inadequate emergency access; or (see Impact 3.14-3 below)*
f. *Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance of safety of such facilities. (see discussion immediately below)*

The following discussion of environmental impacts is limited to those potential impacts that could result in some level of potentially significant environmental change to the transportation/circulation system, as defined by CEQA. The project would not cause substantial long-term/on-going effects because project facilities, once constructed, would only require maintenance activities similar to those that occur under existing conditions and the increase in employees due to the implementation of the OBMPU is forecast to result in less than an estimated 50 new employees.

The duration of the potential significant impacts would be limited to the period of time needed to construct a project. Therefore, level-of-service standards and a congestion management program, which are intended to monitor and address long-term traffic impacts resulting from future development, do not apply to temporary impacts associated with construction activities (bullet 2 above). In addition, because the project does not include any modifications to air flights, there would not be an increase in air traffic. However, there could be OBMPU projects located within an airport safety zone that could result in safety risks as discussed in Section IX, Hazards and Hazardous Materials (bullet 3 above). Also, implementation of the proposed master plan would not directly or indirectly eliminate existing or planned alternative transportation corridors or facilities (bicycle paths, lanes, bus turnouts, etc.), include changes in policies or programs that support alternative transportation, or construct permanent above ground facilities in locations in which future alternative transportation facilities are planned (bullet 6 above). Therefore, no impact would occur under these three categories, and these categories are not discussed further within this section.

Methodology

This section assesses the transportation impacts that could result from the implementation of the OBMPU Program Elements over the next 30 years (2020 through 2050). Because of the geographic scale of the Chino Basin and the as-yet-undetermined locations of many facilities/projects, this impact assessment was conducted at a programmatic level. Assumptions regarding the types of equipment and vehicles, and the types of roads used for workers to commute to and from work sites and for trucks to haul materials were used to assess the overall significance of program impacts. It is assumed that supplemental project-level analysis of transportation-related impacts (e.g., traffic safety analysis of heavy vehicles travelling on, and turning onto and off of, local roads) would be required for site-specific facilities prior to commencement of construction activity.

Impacts Discussion

a. *Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?*

The proposed program would construct and operate facilities identified in the OBMPU. Implementation of actions under this program would require the construction and maintenance of various facilities. Based on the typical sizing for such facilities, the proposed project may potentially introduce congestion and delays for traffic flow on area roadways. Increased traffic would be generated primarily by construction workers commuting to and from the facility work sites, and by trucks hauling materials and equipment to and from the sites. Construction equipment would be delivered to, and removed from, each site as needed; i.e., the movement of equipment would not occur on a daily basis. Note also that these project impacts to the area circulation system will occur sporadically over the 30-year period of OBMPU implementation.

The construction traffic impacts associated with each individual facility would be short-term in nature and limited to the period of time when construction activity is taking place for that particular facility. The primary off-site impacts resulting from the movement of construction trucks would include a short-term and intermittent reduction of roadway capacities due to the slower movements and larger turning radii of the trucks compared to passenger vehicles. Drivers could experience delays if they were travelling behind a heavy truck. The added traffic would be most apparent on local two-lane roadways. Although project-related traffic would be temporary, supplemental project-level analysis of potential site-specific impacts could determine that addition of project-generated traffic would be considered substantial in relation to traffic flow conditions on local roadways. The potential impacts resulting from the implementation of the OBMPU projects are described below by project category and the combination of all four project categories.

Project Category 1: Well Development and Monitoring Devices (PEs 1-9)
This project category includes development of ASR, injection, pumping, groundwater level, and water quality monitoring wells; associated well housing and monitoring devices such as flow meters and extensometers; and their operation. These wells would be installed throughout the Chino Basin, but with an emphasis on new well facilities north of State Highway 60 (SH 60). Also, all of the wells and support facilities will be installed outside of road rights-of-way (ROWs) so there would be minimal conflict between Category 1 facility construction activities and roadway operations, including bicycle paths and sidewalks.

The construction of the proposed well and ancillary facilities would require a maximum of 10 workers per day, generating about 15 one-way vehicle trips (assuming each worker commuted in their own private vehicle). It is estimated that a maximum of two haul trucks and one 22 vendor truck would be needed each day, generating up to three one-way truck trips per day. The well drilling or ancillary facility construction workers associated with Category 1 activities are expected to arrive at and depart from the work sites during a one-hour period at the start and end of the work day, respectively, while truck trips would be spread over the course of the work day. Both the worker trips and truck trips would be spread over different roads that would provide access to the locations of the wells or ancillary facilities. For this program-level assessment, this impact is considered to be less than significant. This is because even when large truck trips are assigned a passenger car equivalent (PCE) of three trips, the total number of all trips per day would be less than 50 trips for Category 1 facilities.

Once installed, Category 1 facilities may require future maintenance visits (one trip per week estimated) or future repairs which would not normally require implementation of measure TRAN-1 because Category 1 facilities will rarely encroach into ROWs. This operational impact is considered a less than significant impact to traffic flow or the circulation system without mitigation.

Project Category 2: Conveyance Facilities and Ancillary Facilities (PEs 2, 4-9)
This category includes the construction of an estimated 550,000 LF of new pipelines, booster pump stations, reservoirs, and supporting equipment. The proposed conveyance facilities and ancillary facilities would be implemented throughout the entire Chino Basin. It is assumed that most pipelines will be installed within existing, disturbed public rights-of-way (ROW) with support facilities in adjacent developed areas, including reservoirs.

Improvements to conveyance systems and ancillary facilities include but are not limited to: installation of new pipelines, rehabilitation of old pipelines, pump stations, lift stations, emergency generators, meters, electrical, system improvements, tanks, and discharge relocations. The proposed improvements to conveyance systems and ancillary facilities would be implemented throughout the entire Chino Basin.

The construction of the proposed conveyance systems and ancillary facilities would require a maximum of 74 workers per day, generating about 148 one-way vehicle trips (assuming each worker commuted in their own private vehicle. It is estimated that up to 3 haul trucks and 23 vendor trucks would be needed each day, generating up to 52 one-way truck trips per day. The construction workers are expected to arrive at and depart from each day’s work sites during a one-hour period at the start and end of the work day, respectively, while truck trips would be spread over the course of the work day. Both the worker trips and truck trips would be spread over different roads that provide access to the locations of the pipeline corridors.

In addition to the increased traffic on area roadways, the installation of new pipelines and rehabilitation of old pipelines would temporarily reduce the capacity of roadways along the pipeline alignment(s) due to open-trenching within existing roadway ROWs and the resulting temporary lane closures on the affected roadways. The impact of the lane closures would vary based on the number of lanes needed to be closed (a function of pipeline diameter and trench width) and the width (number of lanes) of the affected roads. Multi-lane roads (four or more lanes) would be better able to accommodate two-way traffic than two-lane roadways. Two-lane roads would likely require active traffic control (flaggers) to allow alternate one-way traffic flow on the available road width, and could possibly require full road closure (with detour routing around the construction work zone). For this program-level assessment, this impact is considered potentially significant.

Mitigation measure **TRAN-1**—addressed below—would be required to reduce potential impacts to traffic and transportation conditions Implementation of this measure, in conjunction with the temporary character of the construction impacts, is considered sufficient to ensure adequate flow of traffic in a safe manner for Category 2 facility installation.

Once installed, Category 2 facilities may require future maintenance visits (one trip per week estimated) or future repairs which could require implementation of measure **TRAN-1** if repairs require more than a few hours. This operational impact is considered a less than significant impact to traffic flow or the circulation system with mitigation.

Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands (PEs 2, 4-5,8-9)
This category includes the construction of up to 310 acres of storage basins, including new basins and modifications/improvements to existing basins. It includes the use of up to 200 acres of agricultural land to support flood MAR facilities, new MS-4-compliance facilities and expansion of the maximum storage space (safe storage capacity) to be used in the Chino Basin from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af between this range of storage. The specific locations of the storage basins are described in the Project Description above; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

The storage basins, recharge facilities, storage bands, flood MAR facilities and most of the MS4 facilities will be located on land outside of road ROWs. Some MS4 facilities may be installed in roadways (such as drainage inlets on roadways that require treatment systems), but these MS4 facilities offer little potential to support surface water recharge. Similar to Category 1 such facilities have little potential to directly impact roadways and related traffic. However, indirectly the construction of Category 3 facilities (particularly the storage basins) may generate sufficient traffic during construction to affect local roadways, such as Central Avenue, El Prado Road or Kimball Avenue that could provide access to a CIM storage basin site.

The construction of new storage basins or expansion of existing storage basins, construction of new recharge basins may require a maximum of 54 workers, generating about 108 one-way vehicle trips (assuming each worker commuted in their own private vehicle). It is estimated that up to 201 haul trucks and 5 vendor trucks would be needed each day, generating up to 412 one-way truck trips per day. The construction workers are expected to arrive at and depart from each day's work sites during a one-hour period at the start and end of the work day, respectively, while truck trips would be spread over the course of the work day. Both the worker trips and truck trips would be spread over different roads that provide access to the locations of the pipeline corridors. For this program-level assessment, this impact is considered potentially significant and would require implementation of measure **TRAN-1**.

Project Category 4: Desalters and Water Treatment Facilities (PEs 2, 4-9)
The projects proposed under this category include: upgrades at IEUA's existing Water Recycling Plants (WRPs, discussed in detail in IEUA's 2017 FMP PEIR); a new advanced water treatment plant; improvements to the WFA Agua de Lejos Treatment Plant; upgrades to the Chino Desalters, new groundwater treatment facilities at or near existing well sites and at regionally located sites; and improvements to existing groundwater treatment facilities.

These improvements would be installed at facilities throughout the Chino Basin. All improvements and support facilities will be installed outside of road rights-of-way (ROWs) on existing sites, or in the case of a new advanced water treatment facility at a new location, but still out of public roadway alignments. Thus, there would be minimal conflict between Category 4 facility construction activities and roadway operations, including bicycle paths and sidewalks.

The construction of the proposed improvements and new advance water facility would require a maximum of 50 workers per day, generating about 100 one-way vehicle trips (assuming each worker commuted in their own private vehicle). It is estimated that up to 3 haul trucks and 15 vendor trucks would be needed each day, generating up to 18 one-way truck trips per day. The construction workers are expected to arrive at and depart from each day's work sites during a one-hour period at the start and end of the work day, respectively, while truck trips would be spread over the course of the work day. Both the worker trips and truck trips would be spread over different roads that provide access to the locations of the pipeline corridors. For this program-level assessment, this impact is considered to be less than significant. This is because even when large truck trips are assigned a passenger car equivalent (PCE) of three trips, the total number of all trips per day would be about than 54 trips for Category 4 facilities.

Once construction is completed, Category 4 facilities will either continue modified operations, or in the case of a new advanced water treatment require a new employee base. Overall changes in traffic due to these OBMPU facilities would not make any major changes in traffic during operations. This potential operational impact is considered a less than significant impact to traffic flow or the circulation system without mitigation.

Combined Project Categories Impact
The implementation of improvements proposed in Project Categories 1 through 4 could occur concurrently. Based on a conservative assumption that the maximum trips by project category occur concurrently, there would be a maximum of several hundred one-way vehicle trips per day by construction workers and a maximum of several hundred one-way truck trips per day. As stated above, the construction workers are expected to arrive at and depart from the work sites during a one-hour period at the start and end of the work day, respectively, while truck trips would be spread over the course of the work day. Both the worker trips and truck trips would be spread over different roads that provide access to the locations of the treatment facilities. For this program-level assessment, this combined impact is considered potentially significant.

Level of Significance Before Mitigation: Potentially Significant

Mitigation Measures:

Project Category 1: Less Than Significant

Project Category 2: Implementation of Mitigation Measure **TRAN-1** is required to achieve a less than significant impact.

TRAN-1: ***For projects that may affect traffic flow along existing roadways, the implementing agency shall require that contractors prepare a construction traffic control plan. Elements of the plan should include, but are not necessarily limited to, the following:***

- ***Develop circulation and detour plans, if necessary, to minimize impacts to local street circulation. Use haul routes minimizing truck traffic on local roadways to the extent possible.***
- ***To the extent feasible, and as needed to avoid adverse impacts on traffic flow, schedule truck trips outside of peak morning and evening commute hours.***
- ***Install traffic control devices as specified in Caltrans' Manual of Traffic Controls for Construction and Maintenance Work Zones where needed to maintain safe driving conditions. Use flaggers and/or signage to safely direct traffic through construction work zones.***
- ***For roadways requiring lane closures that would result in a single open lane, maintain alternate one-way traffic flow and utilize flagger-controls.***
- ***Coordinate with facility owners or administrators of sensitive land uses such as police and fire stations, hospitals, and schools. Provide advance notification to the facility owner or operator of the timing, location, and duration of construction activities.***

Project Category 3: Implementation of Mitigation Measure **TRAN-1** is required to achieve a less than significant impact.

Project Category 4: Less Than Significant

*Combined Project Categories: Implementation of Mitigation Measure **TRAN-1** is required. Less than significant impact without mitigation.*

Level of Significance After Mitigation: Less Than Significant

The implementation of Mitigation Measure **TRAN-1** would reduce the project's potential construction traffic impacts to less than significant. Mitigation Measure **TRAN-1** would require all construction activities to be conducted in accordance with an approved construction traffic control plan, which would serve to reduce the construction-related traffic impacts to the maximum extent feasible. Thus, through the environmental review and development permit process, subsequent project-specific analysis would be needed to determine specific required elements of the traffic control plans.

Cumulative Impact Analysis

The Chino Basin is largely urbanized with residential, commercial and industrial development. As the Chino Basin continues to develop, the addition of more residential, commercial, and industrial development is expected to substantially increase traffic volumes on roadways within the project area. This substantial increase from cumulative development is expected to result in significant cumulative impacts on the existing transportation systems. Because the construction activities associated with the OBMPU projects would increase construction traffic on the area roadways and potentially cause significant impacts, the OBMPU projects' contribution to cumulative impacts on roadways would be cumulatively considerable and a potential significant cumulative impact would occur.

*Cumulative Measures: Implementation of Mitigation Measure **TRAN-1** is required.*

Level of Significance After Mitigation: Less Than Significant

The implementation of Mitigation Measure **TRAN-1** would reduce the project's contribution to potential construction traffic impacts to less than significant. The above measure would require all construction activities to be conducted in accordance with an approved construction traffic control plan, which would serve to reduce the construction-related traffic impacts to the maximum extent feasible. Thus, through the environmental review and development permit process, subsequent project-specific analysis would be needed to determine specific required elements of the traffic control plans.

b. Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?

Vehicle miles traveled (VMT) in support of infrastructure construction and operation over the next 30 years will be responsive to the need for travel during both construction and operations. Unlike a development project, traffic in support of OBMPU facilities will be sporadic (construction and operations) and based on demand, not discretional travel associated with a residence. Extraneous travel is not forecast to be carried out in support of OBMPU infrastructure facilities during either construction or operations. Therefore, future implementation of the OBMPU has no potential to conflict with or be inconsistent with State CEQA Guidelines Section 15064.3, Subdivision 3.

c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Note that no operational traffic or circulation system impacts due to any design features have been identified for the four project categories evaluated under the OBMPU.

Project Category 1: Well Development and Monitoring Devices (PEs 1-9)

Category 1 project construction would not alter the physical configuration of the existing roadway network serving the area, and would not introduce unsafe design features. Also, although construction of the wells and monitoring devices could temporarily increase the type of vehicles (i.e., trucks) that could be incompatible with predominantly automobile vehicles on local roadways, the change to the mix of vehicles would stop when project construction is completed. The potential conflicts between construction trucks and automobiles on local roadways are considered a less than significant impact through implementation of measure **TRAN-1**.

Project Category 2: Conveyance Facilities and Ancillary Facilities (PEs 2, 4-9)
Category 2 project construction would not alter the physical configuration of the existing roadway network serving the area, and would not introduce unsafe design features. Also, although construction of the conveyance systems and ancillary facilities could temporarily increase the type of vehicles (i.e., trucks) that could be incompatible with predominantly automobile vehicles on local roadways, the change to the mix of vehicles would stop when Project construction is completed. The potential conflicts between construction activities and automobiles on local roadways are considered a less than significant impact through implementation of measure **TRAN-1.**

Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands (PEs 2, 4-5,8-9)
Category 3 project construction would not alter the physical configuration of the existing roadway network serving the area, and would not introduce unsafe design features. Also, although construction of the groundwater recharge and extraction facilities could temporarily increase the type of vehicles (i.e., trucks) that could be incompatible with predominantly automobile vehicles on local roadways that change to the mix of vehicles would stop when Project construction is completed. The potential conflicts between construction trucks and automobiles on local roadway are considered a less than significant impact through implementation of measure **TRAN-1**.

Project Category 4: Desalters and Water Treatment Facilities (PEs 2, 4-9)
Category 4 project construction would not alter the physical configuration of the existing roadway network serving the area, and would not introduce unsafe design features. Also, although construction of the groundwater recharge and extraction facilities could temporarily increase the type of vehicles (i.e., trucks) that could be incompatible with predominantly automobile vehicles on local roadways that change to the mix of vehicles would stop when Project construction is completed. The potential conflicts between construction trucks and automobiles on local roadway are considered a less than significant impact through implementation of measure **TRAN-1**.

Combined Project Categories
The combination of proposed construction under Project Categories 1, 2, 3 and 4 could exacerbate the traffic hazard impacts along roadways. These impacts could be considered potentially significant but reduced to a less than significant impact level through implementation of measure **TRAN-1**.

Level of Significance Before Mitigation: Potentially Significant

Mitigation Measures:

Project Category 1: Implementation of Mitigation Measure **TRAN-1** is required to achieve a less than significant impact.

Project Category 2: Implementation of Mitigation Measure **TRAN-1** is required to achieve a less than significant impact.

Project Category 3: Implementation of Mitigation Measure **TRAN-1** is required to achieve a less than significant impact.

Project Category 4: Implementation of Mitigation Measure **TRAN-1** is required to achieve a less than significant impact.

Level of Significance After Mitigation: Less Than Significant

The implementation of Mitigation Measure **TRAN-1** would reduce the project’s contribution to potential construction traffic hazard impacts to less than significant. The above measure would reduce traffic hazards by requiring all construction activities to be conducted in accordance with an approved construction traffic control plan. Thus, through the environmental review and development permit process, subsequent project-specific analysis would be needed to determine specific required elements of the traffic control plans.

Cumulative Impact Analysis

The Chino Basin service area is largely urbanized with residential, commercial and industrial development. As the service area continues to develop, the addition of more residential, commercial, and industrial development is expected to substantially increase traffic volumes on roadways within the service area. This increase in cumulative traffic volumes could result in significant hazard impacts. Because the proposed construction activities associated with the OBMPU projects could temporarily increase the type of vehicles (i.e., trucks) that could be incompatible with predominantly automobile vehicles on local roadways, potential conflicts between construction trucks and automobiles could result in significant traffic hazard impacts. Therefore, the project's contribution to cumulative traffic hazard impacts would be considered cumulatively considerable and result in a significant cumulative impact.

Cumulative Measures: *Implementation of Mitigation Measure* ***TRAN-1*** *is required to achieve a less than significant impact.*

Level of Significance After Mitigation: Less Than Significant

The implementation of Mitigation Measure **TRAN-1** would reduce the project's contribution to potential construction traffic hazard impacts to less than significant. The above measure would reduce traffic hazards by requiring all construction activities to be conducted in accordance with an approved construction traffic control plan. Thus, through the environmental review and development permit process, subsequent project-specific analysis would be needed to determine specific required elements of the traffic control plans.

d. Result in inadequate emergency access?

Please refer to the discussion under emergency evacuation routes under Section 9 Hazards and Hazardous Materials for a discussion of potential impacts to emergency access issues.

Project Category 1: Well Development and Monitoring Devices (PEs 1-9)

Construction trucks generated by installation of wells and monitoring devices the treatment facility upgrades would interact with other vehicles on project area roadways, including emergency vehicles, but would not alter the physical configuration of the existing roadway network serving the area. While individual emergency vehicles could be slowed if travelling behind a slow-moving truck, per vehicle code requirements, vehicles must yield to emergency vehicles using a siren and red lights. Because the wells and monitoring devices would be installed outside of road ROWs, lane closures for these facilities are not expected to be required. Therefore, access impacts to emergency vehicles are considered to be less than significant.

Project Category 2: Conveyance Facilities and Ancillary Facilities (PEs 2, 4-9)

Construction trucks generated by the conveyance systems and ancillary facilities would interact with other vehicles on project area roadways, including emergency vehicles, but would not alter the physical configuration of the existing roadway network serving the area. While individual emergency vehicles could be slowed if travelling behind a slow-moving truck, per vehicle code requirements, vehicles must yield to emergency vehicles using a siren and red lights. Construction vehicles travelling along the roadways are expected to result in a less than significant impact on emergency access similar to Project Category 1.

Because the proposed pipelines and some of the ancillary facilities could require the closure of lanes during construction activities, potential access impacts on emergency vehicles could occur. These potential impacts are considered a less than significant impact through implementation of measure **TRAN-1**.

Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands (PEs 2, 4-5,8-9)

Construction trucks generated by the Category 3 facility construction would interact with other vehicles on project area roadways, including emergency vehicles, but would not alter the physical configuration of the existing roadway network serving the area. While individual emergency vehicles could be slowed if travelling behind a slow-moving truck, per vehicle code requirements, vehicles must yield to emergency vehicles using a siren and red lights. Construction vehicles travelling along the roadways are expected to result in a less than significant impact on emergency access similar to Project Category 1. Because the proposed implementation of some of the Category 3 facilities could generate substantial traffic during construction activities, potential access impacts on emergency vehicles could occur. These potential impacts are considered a less than significant impact through implementation of measure **TRAN-1**.

Project Category 4: Desalters and Water Treatment Facilities (PEs 2, 4-9)
Category 4 project construction would not alter the physical configuration of the existing roadway network serving the area, and would not introduce unsafe design features. Also, although construction of the groundwater recharge and extraction facilities could temporarily increase the type of vehicles (i.e., trucks) that could be incompatible with emergency vehicle responses that change to the mix of vehicles would stop when Project construction is completed. The potential conflicts between construction trucks and emergency vehicles on local roadways are considered a less than significant impact through implementation of measure **TRAN-1**.

Combined Project Categories
For reasons described above, the combination of improvements proposed in Project Categories 2, and 3 would have similar less than significant impacts on emergency vehicle access from construction vehicles travelling on the roadways. However, the implementation of facilities that are part of Project Categories 2 and 3 could require the closure of lanes during construction activities. Lane closures could result in potential access impacts on emergency vehicles. These potential impacts are considered a less than significant impact through implementation of measure **TRAN-1**.

Level of Significance Before Mitigation: Potentially Significant

Mitigation Measures:

Project Category 1: Less Than Significant

Project Category 2: Implementation of Mitigation Measure **TRAN-1** is required to achieve a less than significant impact.

Project Category 3: Implementation of Mitigation Measure **TRAN-1** is required to achieve a less than significant impact.

*Project Category 4: I*mplementation of Mitigation Measure **TRAN-1** is required to achieve a less than significant impact

Level of Significance After Mitigation: Less Than Significant

The implementation of Mitigation Measure **TRAN-1** would reduce the project's potential construction impacts on emergency access to a less than significant impact. The above measure would reduce impacts on emergency access by requiring all construction activities to be conducted in accordance with an approved construction traffic control plan and require coordination of timing, location, and duration of construction activities with emergency services such as police and fire.

Cumulative Impact Analysis
The Chino Basin is largely urbanized with residential, commercial and industrial development. As the continues to develop, the addition of more residential, commercial, and industrial development is expected to substantially increase traffic volumes on roadways within the service area. Cumulative construction activities are expected to increase construction vehicles travelling on the roadways. While individual emergency vehicles could be slowed if travelling behind a slow-moving truck, per vehicle code requirements, vehicles must yield to emergency vehicles using a siren and red lights. Cumulative construction vehicles travelling along the roadways are expected to result in a less than significant impact on emergency access.

The implementation of some of the cumulative projects within the Chino Basin could result in lane closures during construction activities. Lane closures due to cumulative construction activities could result in potential access impacts on emergency vehicles. These potential cumulative impacts are considered significant. Because the construction activities associated with some of the OBMPU projects could result in lane closures, the project's contribution to cumulative impacts on emergency access is considered cumulatively considerable and a significant cumulative impact.

Cumulative Measures: Implementation of Mitigation Measure **TRAN-1** is required.

Level of Significance After Mitigation: Less Than Significant

The implementation of Mitigation Measure **TRAN-1** would reduce the project's cumulative contribution to potential construction impacts on emergency access to a less than significant impact. The above measure would reduce impacts on emergency access by requiring all construction activities to be conducted in accordance with an approved construction traffic control plan and require coordination of timing, location, and duration of construction activities with emergency services such as police and fire.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
XVIII. TRIBAL CULTURAL RESOURCES: Would the project cause a substantial change in the significance of tribal cultural resources, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to the California Native American tribe, and that is:				
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☒	☐	☐	☐
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in sub-division (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☒	☐	☐	☐

SUBSTANTIATION

a&b. *Potentially Significant Impact* – Cumulatively, the facilities proposed by the OBMPU may result in impacts to tribal cultural resources. A deeper analysis of this topic is required to determine the impacts that may result from each of the types of facilities proposed as part of the OBMPU. As a result, this topic will be further evaluated in the EIR.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
XIX. UTILITIES AND SERVICE SYSTEMS: Would the project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment, or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☒	☐	☐	☐
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☒	☐	☐	☐
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☒	☐	☐
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☒	☐	☐
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☒	☐	☐

SUBSTANTIATION:

XIX.1 Environmental Setting

Of the issues covered under the Utilities topic, water supply and extension of infrastructure will be carried over to the Focused PEIR because these topics may be significant. As such, these topics will not be discussed as part of the Environmental Setting in this Initial Study.

Wastewater and Water Treatment Facilities

There are several wastewater providers within the Chino Basin, though the provider with the largest service area is the Inland Empire Utilities Agency (IEUA), which has constructed a Regional Sewerage System within its service area to collect, treat and dispose of wastewater delivered by contracting local agencies. As a regional wastewater treatment agency, IEUA provides sewage utility services to seven contracting agencies under the Chino Basin Regional Sewage Service Contract: the cities of Chino, Chino Hills, Fontana, Montclair, Ontario, Upland, and the City of Rancho Cucamonga (via the Cucamonga Valley Water District). The contracting cities and water districts are responsible for wastewater collection within their individual service areas. A system of regional trunk and interceptor sewers that convey sewage to regional wastewater treatment plants is owned and operated by IEUA. IEUA's wastewater collection system is divided into two major service areas: the Northern Service Area and the Southern Service Area.

IEUA receives approximately 50 MGD of wastewater annually at four wastewater treatment and water recycling plants: Regional Water Recycling Plant No. 1 (RP-1), Regional Water Recycling Plant No. 4 (RP-4), Regional Water Recycling Plant No. 5 (RP-5) and Carbon Canyon Water Recycling Facility (CCWRF). Regional Water Recycling Plant No. 2 (RP-2) no longer operates its liquid treatment sections as of 2002, and only treats solid waste. Recycled water from the plants is treated to Title 22 regulations set forth by the California Department of Health Services and distributed throughout the service area. IEUA currently delivers approximately 30,000 acre-feet per year (AFY) of recycled water for such uses as agriculture, irrigation, industrial uses, and groundwater replenishment. In addition to its water recycling plants, IEUA operates the Chino I Desalter, a water desalter treatment plant in Chino. The Chino Basin Desalter Authority (CDA) oversees management of the Chino I Desalter, along with the Chino II Desalter located in Jurupa Valley.

In addition to IEUA, there are several other wastewater treatment providers in Chino Basin. For instance, the Water Facilities Authority (Authority) is a Joint Powers Authority governed by its member agencies: Chino, Chino Hills, Monte Vista Water District, Ontario, and Upland; its service area covers approximately 135 square miles within the upper Santa Ana River watershed. The City of Riverside, Inland Empire Brine Line owned by the Orange County Sanitation District, and the Western Riverside County Regional Wastewater Authority (WRCRWA) each treat a portion of the wastewater generated within the Jurupa Community Services District (JCSD). Finally, the Sanitation Districts of Los Angeles County operates a treatment plant that collects wastewater from the City of Pomona. The respective operational treatment plants are described below.

Wastewater and Water Treatment Plants

RP-1 is located at 2662 East Walnut Street in the City of Ontario and has been in operation since 1948. The plant has undergone several expansions to increase the design hydraulic domestic sewage (wastewater) treatment capacity to 44 million gallons per day. The plant serves areas of Chino, Fontana, Montclair, Ontario, Rancho Cucamonga, Upland, and solids removed from RP-4, located in Rancho Cucamonga. The plant treats an average influent wastewater flow of approximately 28 million gallons per day. RP-1 includes both liquid and solid treatment processes (IEUA, 2016).

RP-2 is located at 16400 El Prado Road in the City of Chino and has been in operation since 1960. The plant operated both liquids and solids treatment sections, until 2002, when RP-5 was constructed to handle the liquids treatment section portion of RP-2. Solids are removed from CCWRF and RP-5 and treated at RP-2. The solids treatment section begins with thickening the solids removed from the RP-5 and CCWRF primary and secondary clarification processes. After dewatering, the biosolids are hauled to the Inland Empire Regional Composting Facility (IERCF) in the City of Rancho Cucamonga for further treatment to produce Class A compost (IEUA, 2016).

RP-4 is located at 12811 6th Street in the City of Rancho Cucamonga and has been in operation since 1997. The plant has undergone an expansion to increase the design hydraulic domestic wastewater treatment capacity to 14 million gallons per day. The plant serves areas of Fontana, Rancho Cucamonga, and San Bernardino County. The plant treats the liquid portion of an average influent wastewater flow of approximately 10 MGD (IEUA, 2016).

RP-5 is located at 6063 Kimball Avenue, Building C in the City of Chino and has been in operation since 2004. The design hydraulic domestic wastewater treatment capacity is 16.3 million gallons per day, which includes 1.3 million gallons per day of solids processing returned from RP-2. The plant serves areas of Chino, Chino Hills, and Ontario. The plant treats the liquid portion of an average influent wastewater flow, including RP-2 returned flow, of approximately 9 MGD (IEUA, 2016).

CCWRF is located at14950 Telephone Avenue in the City of Chino and has been in operation since 1992. The design hydraulic domestic wastewater treatment capacity is 11.4 million gallons per day. The plant serves areas of Chino, Chino Hills, Montclair and Upland. The plant treats the liquid portion of an average influent wastewater flow of approximately 7 MGD (IEUA, 2016).

Chino I Desalter plant is located at 6905 Kimball Avenue in the City of Chino and commenced operation in 2001. The plant was expanded in 2005 from an 8.4 MGD facility to a 14 MGD facility. Groundwater is pumped from supply wells throughout the Chino Basin area to the Chino I Desalter. The treatment processes include reverse osmosis and ion-exchange for removal of nitrate and total dissolved solids. Approximately 2 MGD of brine, a byproduct of the reverse osmosis and ion exchange processes is transported by the Santa Ana River Inceptor (SARI line) to Orange County and is subsequently discharged to the ocean. The high-quality water is then pumped into the municipal water supply systems for the cities of Chino and Chino Hills, and into the Jurupa Community Services District water system (IEUA, 2016).

Chino II Desalter plant is located at 11202 Harrell Street in the City of Mira Loma and was initiated by the Chino Desalter Authority to provide water deliveries to the cities of Norco, Ontario, Jurupa Community Services District and Santa Ana River Water Company. The treatment processes include reverse osmosis and ion-exchange. The Chino II Desalter became operational in 2006 and was expanded in 2010. It produced an average of 10.6 MGD of drinking water in 2012 and a little more than 1 MGD of brine that is transported by the SARI line to Orange County and subsequently discharged to the ocean (IEUA, 2016).

WFA Agua de Lejos Treatment Plant is located at 1775 N Benson Ave, Upland, CA 91784. The Water Facilities Authority (Authority) is a Joint Powers Authority governed by its member agencies: Chino, Chino Hills, Monte Vista Water District, Ontario, and Upland. Its service area covers approximately 135 square miles within the upper Santa Ana River watershed. The Authority owns and operates a surface water treatment plant called Agua de Lejos Treatment Plant, which began operations in 1988 and is located in the City of Upland. This treatment plant treats and disinfects imported water supplies, primarily state project water, purchased from Metropolitan Water District to supplement local groundwater supplies. Through its members, the Authority indirectly serves more than 450,000 people in the west-end of San Bernardino County.[75] Agua de Lejos Treatment Plant receives imported surface water supplies from the State Water Project (SWP) from Metropolitan Water District through Inland Empire Utilities Agency.[76] The treatment plant, located on sixteen acres in North Upland, has the capacity to treat and disinfect 81 mgd (million gallons per day). However, recent historical flows through the treatment plant is normally 40–50 mgd during the peak summer months and can be as low as 9-12 mgd during the slower winter months.[77]

Riverside Water Quality Control Plant (RWQCP) is located at 5950 Acorn Street Riverside, CA 92504. The RWQCP is being expanded, however, it currently consists of two separate treatment plants and one common tertiary filtration plant. These provide preliminary, primary, secondary and tertiary treatment for a rated capacity of 40 million gallons per day (MGD).[78] The Jurupa Community Services District (JCSD) discharges wastewater to three different treatment plants from three independent sewer systems. The first utilizes the District's Regional Lift Station to pump wastewater to the City of Riverside Treatment Plant.[79]

Inland Empire Brine Line is a gravity pipeline that delivers non-reclaimable waste from the Santa Ana River watershed upstream of Orange County to a treatment plant in Orange County owned and operated by Orange County Sanitation District.[80] The JCSD utilizes their CFD No. 1 wastewater system, which collects sewage from industrial sources is discharged to the Inland Empire Brine Line (IEBL) for treatment in Orange County, which has higher salt limits because it is an ocean discharge. The JCSD's water treatment plants also discharge brine to the IEBL to take advantage of these higher discharge limits.

Western Riverside County Regional Wastewater Authority Plant has the capacity to treat 14 million gallons per day (MGD) of wastewater.[81] The Eastvale area (within the JCSD) discharges to the River Road Lift Station, which pumps the wastewater to another regional treatment plant, operated by a joint powers authority known as the Western Riverside County Regional Wastewater Authority (WRCRWA). The JCSD proactively operates and maintains its sewer system to convey the wastewater to the treatment plants in a reliable and cost-effective manner in accordance with the recently adopted Sewer Management Plan.

Pomona Water Reclamation Plant is located at 295 Humane Way in the City of Pomona and is managed by the Sanitation Districts of Los Angeles County. The plant occupies 14 acres northeast of the intersection of the Pomona (60) and Orange (57) Freeways. The Pomona WRP provides primary, secondary and tertiary

[75] http://www.wfajpa.org/
[76] The SWP includes 29 storage facilities, 18 pumping plants, 4 pumping-generating plants, 5 hydroelectric power plants and approximately 660 miles of canals and pipelines—spanning two-thirds of the length of California.
[77] http://www.wfajpa.org/#Facilities
[78] https://www.riversideca.gov/publicworks/sewer/wqcp.asp
[79] https://www.jcsd.us/customers/sewer-wastewater
[80] https://www.sbvmwd.com/about-us/projects/inland-empire-brine-line
[81] https://www.wrcrwa.org/152/Treatment-Plant-Overview

treatment for 15 million gallons of wastewater per day (see flow diagram below). The plant serves a population of approximately 130,000 people. Approximately 8 million gallons per day of the recycled water is used at over 190 different sites. Reuse applications include landscape irrigation of parks, schools, golf courses, greenbelts, etc.; irrigation and dust control at the Spadra Landfill; and industrial use by local manufacturers. The remainder of the recycled water is discharged into the San Jose Creek, where it is allowed to percolate into the groundwater in the unlined portions of the San Gabriel River before flowing into the ocean.

Storm Water

Each of the cities within the Chino Basin maintain storm water drainage infrastructure within their respective city limits. San Bernardino County and Riverside County each manage the storm drain system within their respective unincorporated areas of the Chino Basin and the regional stormwater runoff conveyance infrastructure.

Solid Waste Management

The California Department of Resources Recycling and Recovery (CalRecycle) maintains a Solid Waste Information System (SWIS) that lists disposal sites in San Bernardino County by disposal facility activity, regulatory status, and operational status. According to SWIS, there are two active Class III landfills[82] within a 20-mile radius of the Chino Basin that conduct solid waste disposal activities and accept construction and demolition material. These landfills are the El Sobrante and Mid-Valley Sanitary Landfills. **Table XIX-1** lists the closure dates, daily permitted capacities, and remaining permitted capacities of the local Class III solid waste landfills.

Waste Management of Inland Empire is the local division of Waste Management, Inc. that provides collection, disposal, recycling, and environmental services to the Inland Empire. It serves over 220,000 residents and disposes over 17,000 tons of waste weekly in the Inland Empire. It operates the El Sobrante Landfill in Corona, which processes about 43 percent of the San Bernardino County's annual waste and can currently receive up to 70,000 tons of waste per week (Waste Management, 2013). The County of San Bernardino operates the Mid-Valley Sanitary Landfill in Rialto.

In addition to Waste Management Inc., Burrtec Waste Management Services provides solid waste disposal sites and other services such as: trash and recycling facilities; retail waste disposal containers; construction waste facilities including portable restrooms for wastewater; and other private facilities for customized services. Burrtec facilities in proximity to the Chino Basin may be utilized during project construction and operation in addition to the Mid-Valley and El Sobrante landfills; these include: the Agua Mansa Materials Recovery Facility (MRF)/Transfer Station; the West Valley MRF/Transfer Stations; and the East Valley Transfer Recycling Facility, all located within 10 miles of the Chino Basin area.

Table XIX-1
LANDFILLS IN PROXIMITY TO THE CHINO BASIN

Facility Name	Address	Closure Date	Daily Permitted Capacity (tons/day)	Remaining Permitted Capacity (cubic yards)
Mid-Valley Sanitary Landfill	2390 Alder Ave, Rialto, CA 92377	04/01/2033	7,500	61,219,377 as of 4/18
El Sobrante Landfill	10910 Dawson Canyon Rd, Corona, CA 92883	01/01/2051	16,054	143,977,170 As of 6/19
SOURCE: California Department of Resources Recycling and Recovery, *Solid Waste Information System (SWIS)*, 2020 https://www2.calrecycle.ca.gov/swfacilities/Directory/36-AA-0055/ https://www2.calrecycle.ca.gov/swfacilities/Directory/33-AA-0217				

[82] Class III landfills are only permitted to accept nonhazardous solid waste

Energy
Southern California Edison (SCE) is the primary provider of electricity to the Chino Basin area, except within a select area of the southeastern proximity of the City of Rancho Cucamonga, where the Rancho Cucamonga Municipal Utility is the electricity provider. Natural gas services in the Chino Basin are provided by the Southern California Gas Company.

Telecommunication
The Chino Basin area is served by several telecommunication providers including Verizon, California Telecom, AT&T, Frontier, Spectrum, and others.

XIX.2 Impact Discussion

a. Require or result in the relocation or construction of new or expanded water, wastewater treatment, or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

Water
Cumulatively, given that the proposed project involves the management of the Chino Groundwater Basin, the hydrology and water quality impacts related to the implementation of the 2020 OBMPU and associated facilities may be significant. A deeper analysis of this topic is required to determine the impacts that may result from each of the types of facilities proposed as part of the OBMPU. As a result, this issue will be further evaluated in the Focused PEIR.

Wastewater Treatment

Project Category 1: Well Development and Monitoring Devices (PEs 1-9)
This Project Category includes the development of ASR, injection, pumping, groundwater level monitoring, and groundwater quality wells, associated well housing, as well as monitoring devices such as flow meters and extensometers. The proposed wells and monitoring devices will be installed throughout the Chino Basin.

The proposed OBMPU includes construction of wells and installation of monitoring devices. Construction workers would temporarily require use of portable sanitary units during construction of the proposed wells and potentially during the installation of the proposed monitoring devices. Wastewater generated during construction of the proposed projects would be minimal and would not require the construction of new wastewater or water treatment facilities. Because construction of new or expanded facilities is not required to accommodate the OBMPU Category 1 projects, there would be no construction impacts associated with the provision of these facilities to serve the proposed OBMPU facilities.

During operation, the proposed wells and monitoring devices would not require a permanent staff, and as such will not require connection to the sewer system. Therefore, the proposed project would not require the expansion or construction of a new wastewater treatment facilities. Because construction of new or expanded facilities is not required to accommodate the OBMPU projects, there would be no operation impacts associated with the provision of these facilities to serve the OBMPU projects.

Project Category 2: Conveyance Facilities and Ancillary Facilities (PEs 2, 4-9)
This category includes the construction of 550,000 LF of new pipelines, booster pump stations, reservoirs and minor appurtenances whose number. The proposed conveyance facilities and ancillary facilities would be implemented throughout the entire Chino Basin.

Impacts are the same as those identified under Project Category 1.

Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands (PEs 2, 4-5, 8/9)
This Project Category includes the construction of 310 acres of new storage basins—several locations for which are within existing facilities, improvements to existing storage basin(s), 200 acres of flood MAR facilities, new MS4-compliance facilities, and expansion of the maximum storage space (safe storage

capacity) to be used within the Chino Basin from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af between this range of storage. The specific locations of the storage basins are described in the Project Description above; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

Impacts are the same as those identified under Project Categories 1 and 2.

The proposed expansion of the safe storage capacity from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward would not result in any visible above ground impacts beyond those facilities associated with the OBMPU designed to support this expansion as discussed herein. As such, the proposed expansion has no potential to require or result in the relocation or construction of new or expanded wastewater facilities.

Project Category 4: Desalters and Water Treatment Facilities (PEs 2, 4-9)
The projects proposed under this category are: upgrades at IEUA's existing Treatment Plants (discussed in IEUA's 2017 FMP PEIR), a new advanced water treatment plant (discussed in IEUA's 2017 FMP PEIR), improvements to the WFA Agua de Lejos Treatment Plant, upgrades to the Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities.

As stated above, upgrades to IEUA's existing treatment plants were discussed in IEUA's 2017 FMP PEIR; as such though the upgrades at these faculties would constitute "construction of wastewater treatment facilities," impacts thereof were analyzed previously and will not be included within the OBMPU.

The improvements to the Agua de Lejos Treatment Plant and upgrades to the Chino Desalters constitute "construction of wastewater treatment facilities," and are individually not anticipated to result in significant impacts. However, given that the proposed improvements have not been completely identified or designed, and that the specific improvements proposed are needed to fully analyze a project, these improvements need to be further studied once the design has been drafted for each facility. As such mitigation is provided below to ensure that impacts related to construction or extension of wastewater services are minimized below significance thresholds.

Similarly, to the improvements to the Agua de Lejos Treatment Plant and upgrades to the Chino Desalters, upgrades to the Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities would constitute "construction of wastewater treatment facilities," because these facilities would discharge brine waste that would result from treating groundwater. It is anticipated that such facilities would require connection to the Inland Empire Brine Line or other brine line to treat this brine waste to be discharged in some form—for example treated effluent can be discharged to the Ocean. Given that the location of the above facilities is not presently known, and that the design for such facilities has not been drafted, the development of these facilities needs to be further studied once the design and location have been drafted and identified for each facility. As such, mitigation is provided below to ensure that impacts related to construction or extension of wastewater services are minimized below significance thresholds.

Combined Project Categories

Level of Significance Before Mitigation: Potentially Significant

Mitigation Measures:

UTIL-1 ***The Watermaster or Implementing Agency shall prepare subsequent CEQA documentation for the Agua de Lejos Treatment Plant and upgrades to the Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites once specific improvements or facility locations have been identified, and design of such improvements or new facilities has been drafted.***

Level of Significance After Mitigation: Less Than Significant

Implementation of mitigation measure **UTIL-1** is sufficient to reduce the potential for impacts related to construction of wastewater facilities, such as the proposed upgrades at the Agua de Lejos Treatment Plant and to the Chino Desalters.

Stormwater Drainage

Project Category 1: Well Development and Monitoring Devices (PEs 1-9)
This Project Category includes the development of ASR, injection, pumping, groundwater level monitoring, and groundwater quality wells, associated well housing, as well as monitoring devices such as flow meters and extensometers. The proposed wells and monitoring devices will be installed throughout the Chino Basin.

Implementation of proposed wells and extensometers within wells would be housed aboveground, while the flow meters would be installed within surface flows. The proposed wells would be developed within sites that are anticipated to be less than one half acre in size. Well development would result in the addition of impervious surfaces that would increase stormwater quantity. This increase could affect on-site drainage patterns as well as off-site drainage volume and require the construction and operation of new and/or expanded stormwater drainage facilities. As such, mitigation that would require implementation of a drainage plan is provided below to ensure that impacts related to stormwater drainage facilities are minimized below significance thresholds.

Project Category 2: Conveyance Facilities and Ancillary Facilities (PEs 2, 4-9)
This category includes the construction of 550,000 LF of new pipelines, booster pump stations, reservoirs and minor appurtenances whose number. The proposed conveyance facilities and ancillary facilities would be implemented throughout the entire Chino Basin.

Proposed pipelines would be underground and would not permanently alter existing site drainage patterns. The pipelines would not require the construction of new or expanded stormwater drainage facilities. Because there would be no requirement for the construction of new or expanded drainage facilities to serve the proposed project, there would be no construction impacts associated with the provision of these facilities to serve the proposed pipelines.

Development of proposed ancillary facilities would have the same impacts as those identified under Project Category 1.

Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands (PEs 2, 4-5, 8/9)
This Project Category includes the construction of 310 acres of new storage basins—several locations for which are within existing facilities, improvements to existing storage basin(s), 200 acres of flood MAR facilities, new MS4-compliance facilities, and expansion of the maximum storage space (safe storage capacity) to be used within the Chino Basin from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af between this range of storage. The specific locations of the storage basins are described in the Project Description above; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

Impacts are the same as those identified under Project Categories 1 and 2.

The proposed expansion of the safe storage capacity from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward would not result in any visible above ground impacts beyond those facilities associated with the OBMPU designed to support this expansion as discussed herein. As such, the proposed expansion has no potential to require or result in the relocation or construction of new or expanded stormwater facilities.

Project Category 4: Desalters and Water Treatment Facilities (PEs 2, 4-9)
The projects proposed under this category are: upgrades at IEUA's existing Treatment Plants (discussed in IEUA's 2017 FMP PEIR), a new advanced water treatment plant (discussed in IEUA's 2017 FMP PEIR), improvements to the WFA Agua de Lejos Treatment Plant, upgrades to the Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities. Stormwater construction/relocation impacts related to the facilities thoroughly analyzed as part of the IEUA's 2017 FMP PEIR will not be analyzed further as part of this Initial Study.

Impacts are the same as those identified under Project Categories 1, 2, and 3.

Combined Project Categories

Level of Significance Before Mitigation: Potentially Significant

Mitigation Measures:

UTIL-2 ***Implementation of a Drainage Plan to Reduce Downstream Flows. Prior to construction of project facilities, the Watermaster or Implementing Agency shall prepare a drainage plan that includes design features to reduce stormwater peak concentration flows exiting the above ground facility sites (consistent with MS4 requirements) so that the capacities of the existing downstream drainage facilities are not exceeded. These design features could include bio-retention, sand infiltration, return of stormwater for treatment within the treatment plant, and/or detention facilities.***

Level of Significance After Mitigation: Less Than Significant

Implementation of mitigation measure **UTIL-2** is sufficient to reduce the potential for impacts related to construction of wastewater facilities, such as the proposed upgrades at the Agua de Lejos Treatment Plant and to the Chino Desalters.

Electric Power
Cumulatively, the energy required for construction and operational activities associated with the facilities proposed by the 2020 OBMPU may result in significant impacts under this category. A deeper analysis of this topic is required to determine the impacts that may result from each of the types of facilities proposed as part of the OBMPU. As a result, this issue will be further evaluated in the Focused PEIR under the topic of "Energy."

Natural Gas
Cumulatively, the natural gas required for construction and operational activities associated with the facilities proposed by the 2020 OBMPU may result in significant impacts under this category. A deeper analysis of this topic is required to determine the impacts that may result from each of the types of facilities proposed as part of the OBMPU. As a result, this issue will be further evaluated in the Focused PEIR.

Telecommunications
The types of facilities proposed as part of the OBMPU typically would not require extension of telecommunication services. However, given that the facilities proposed as part the OBMPU have not been designed, there is a potential for certain facilities (such as regional groundwater treatment facilities, and any other facilities proposed that would require full-time personnel on site) to require extension of telecommunication infrastructure as part of operation. As such, Mitigation Measure **UTIL-1** would suffice to ensure that impacts related to extension of infrastructure are minimized for the proposed OBMPU projects that would require telecommunication services by requiring project-specific subsequent CEQA documentation.

b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

Cumulatively, given that the proposed project involves the management of the Chino Groundwater Basin, the hydrology and water quality impacts related to the implementation of the 2020 OBMPU and associated facilities may be significant. A deeper analysis of this issue is required to determine the impacts that may result from each of the types of facilities proposed as part of the OBMPU. As a result, this issue will be further evaluated in the Focused PEIR.

c. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Project Category 1: Well Development and Monitoring Devices (PEs 1-9)
This Project Category includes the development of ASR, injection, pumping, groundwater level monitoring, and groundwater quality wells, associated well housing, as well as monitoring devices such as flow meters and extensometers. The proposed wells and monitoring devices will be installed throughout the Chino Basin.

The proposed OBMPU includes construction of wells and installation of monitoring devices. As stated under the response to issue XIX(a) above, construction workers would temporarily require use of portable sanitary units during construction of the proposed wells and potentially during the installation of the proposed monitoring devices. Wastewater generated during construction of the proposed OBMPU facilities would be minimal, consisting of portable toilet waste generated by construction workers and therefore would not substantially impact wastewater treatment capacity. All conveyance systems, groundwater recharge, storage basins, wells, monitoring devices, and ancillary facilities would not generate wastewater during their operation. Therefore, impacts related to available wastewater treatment capacity would be less than significant.

Project Category 2: Conveyance Facilities and Ancillary Facilities (PEs 2, 4-9)
This category includes the construction of 550,000 LF of new pipelines, booster pump stations, reservoirs and minor appurtenances whose number. The proposed conveyance facilities and ancillary facilities would be implemented throughout the entire Chino Basin.

Impacts are the same as those identified under Project Category 1.

Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands (PEs 2, 4-5, 8/9)
This Project Category includes the construction of 310 acres of new storage basins—several locations for which are within existing facilities, improvements to existing storage basin(s), 200 acres of flood MAR facilities, new MS4-compliance facilities, and expansion of the maximum storage space (safe storage capacity) to be used within the Chino Basin from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af between this range of storage. The specific locations of the storage basins are described in the Project Description above; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

Impacts are the same as those identified under Project Categories 1 and 2.

The proposed expansion of the safe storage capacity from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward would not result in any visible above ground impacts beyond those facilities associated with the OBMPU designed to support this expansion as discussed herein. As such, the proposed expansion has no potential to require or result in the impacts related to wastewater treatment capacities.

Project Category 4: Desalters and Water Treatment Facilities (PEs 2, 4-9)
The projects proposed under this category are: upgrades at IEUA's existing Treatment Plants (discussed in IEUA's 2017 FMP PEIR), a new advanced water treatment plant (discussed in IEUA's 2017 FMP PEIR), improvements to the WFA Agua de Lejos Treatment Plant, upgrades to the Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities.

As stated above, upgrades to IEUA's existing treatment plants were discussed in IEUA's 2017 FMP PEIR; as such though the upgrades at these faculties would constitute expansion of wastewater treatment capacity impacts thereof were analyzed previously and will not be analyzed further within the OBMPU.

The improvements to the Agua de Lejos Treatment Plant and upgrades to the Chino Desalters would expand the treatment capacity at each of these facilities. As with the impacts outlined above under Project Category 1, the construction of these upgrades and improvements are not anticipated to generate additional demand for capacity from the wastewater treatment provider due to the limited wastewater this would generate. Given that the proposed OBMPU is not anticipated to generate additional demand for these existing facilities, the programs proposed to be implemented as part of the OBMPU and associated facilities therefore are not anticipated to require substantial additional capacity from the applicable area wastewater treatment provider beyond the provider's existing commitments. Impacts are less than significant.

Upgrades to the Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities would create a new sources of brine waste generated by water treatment that would require treatment by the applicable wastewater treatment provider. It is anticipated that such facilities would require connection to the Inland Empire Brine Line or other brine line to treat this brine waste to be discharged in some form—for example treated effluent can be discharged to the Ocean. Given that the amount of water proposed to be treated by these existing and proposed water treatment facilities is unknown, it is not possible to determine whether these facilities would require OCSD (or another agency responsible for treating brine waste) to expand the capacity of its treatment plant to accommodate the additional brine waste generated by these projects. As such, mitigation measure UTIL-1, which requires subsequent CEQA documentation to be prepared for certain projects is required to minimize potential impacts below significance thresholds.

Combined Project Categories

Level of Significance Before Mitigation: Potentially Significant

Mitigation Measures: Mitigation measure **UTIL-1,** outlined under issue XIX(a) above, is required.

Level of Significance After Mitigation: Less Than Significant

Implementation of mitigation measure **UTIL-1** is sufficient to reduce the potential for impacts related to capacity of area wastewater treatment plants to below significance thresholds.

d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Project Category 1: Well Development and Monitoring Devices (PEs 1-9)
This Project Category includes the development of ASR, injection, pumping, groundwater level monitoring, and groundwater quality wells, associated well housing, as well as monitoring devices such as flow meters and extensometers. The proposed wells and monitoring devices will be installed throughout the Chino Basin.

Construction of wells and monitoring devices would not require a large area of construction. Construction of each well may require demolition of existing facilities, grading, soil import/export, etc. at a specific site. Given that the proposed wells would be located within sites no more than one half acre in size, it is not forecast that construction thereof would generate substantial solid waste. Furthermore, it is not anticipated that each of the proposed wells would be installed concurrently, as such the generation of solid waste from each well would not have a potential to exceed the daily capacity of the local landfills. Each of the OBMPU facilities would include the preparation of a construction and demolition solid waste management plan as required by San Bernardino County, Riverside County, or Los Angeles County for all new construction projects. Information provided in this waste management plan would include how the waste will be managed, hauler identification, and anticipated material wastes. Each plan would demonstrate a minimum of 50 percent diversion of construction building materials and demolition debris from landfills through reuse or recycling, which is required by Assembly Bill 939. As such, development of wells and installation of monitoring devices is not anticipated to generate solid waste in excess of the capacity of local infrastructure.

Project Category 2: Conveyance Facilities and Ancillary Facilities (PEs 2, 4-9)
This category includes the construction of 550,000 LF of new pipelines, booster pump stations, reservoirs and minor appurtenances whose number. The proposed conveyance facilities and ancillary facilities would be implemented throughout the entire Chino Basin.

Similar to the development of wells and monitoring devices, construction of pipelines and ancillary facilities is not anticipated to result in generation of solid waste in excess of the capacities of local infrastructure. However, given that pipelines will require demolition of sections of roadway in order to install conveyance facilities below ground and within rights-of-way, mitigation is required to ensure that all materials that can feasibly be recycled are salvaged.

Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands (PEs 2, 4-5, 8/9)
This Project Category includes the construction of 310 acres of new storage basins—several locations for which are within existing facilities, improvements to existing storage basin(s), 200 acres of flood MAR facilities, new MS4-compliance facilities, and expansion of the maximum storage space (safe storage capacity) to be used within the Chino Basin from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af between this range of storage. The specific locations of the storage basins are described in the Project Description above; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

Similar to the development of wells and monitoring devices, and pipelines and ancillary facilities, construction of storage basins, flood MAR facilities, and new MS4-compliance facilities is not anticipated to result in generation of solid waste in excess of the capacities of local infrastructure. However, given that development of storage basins may require substantial earthmoving activities that may result in substantial soil export, as such, mitigation is required to ensure that, in the event substantial soil export is required, soils of a usable quality are recycled for reuse.

The proposed expansion of the safe storage capacity from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward would not result in any visible above ground impacts beyond those facilities associated with the OBMPU designed to support this expansion as discussed herein. As such, the proposed expansion has no potential to result in impacts to solid waste capacities.

Project Category 4: Desalters and Water Treatment Facilities (PEs 2, 4-9)
The projects proposed under this category are: upgrades at IEUA's existing Treatment Plants (discussed in IEUA's 2017 FMP PEIR), a new advanced water treatment plant (discussed in IEUA's 2017 FMP PEIR), improvements to the WFA Agua de Lejos Treatment Plant, upgrades to the Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities. Stormwater construction/relocation impacts related to the facilities thoroughly analyzed as part of the IEUA's 2017 FMP PEIR will not be analyzed further as part of this Initial Study.

Impacts are the same as those identified under Project Categories 1, 2, and 3—mitigation is required to address potential impacts to solid waste capacities.

Combined Project Categories

Level of Significance Before Mitigation: Potentially Significant

Mitigation Measures:

UTIL-3 ***The contract with demolition and construction contractors for a given OBMPU Project shall include the requirement that all materials that can feasibly be recycled shall be salvaged and recycled. This includes but is not limited to wood, metals, concrete, road base and asphalt. The contractors for a given OBMPU Project shall submit a recycling plan to the Watermaster or Implementing Agency for review and approval prior to the construction of demolition/construction activities.***

UTIL-4 ***The contract with demolition and construction contractors for a given OBMPU Project shall include the requirement that all soils that are planned to be exported from the site that can feasibly be recycled shall be recycled for re-use; alternatively, soils shall be reused on site to balance soil import/export.***

Level of Significance After Mitigation: Less Than Significant

Implementation of mitigation measure **UTIL-3** will ensure that construction and demolition materials that are salvageable are recycled, and thereby diverted from the local landfill, which will minimize the potential for OBMPU projects to generate waste in excess of local landfill capacities. Similarly, **UTIL-4** will ensure that soils that would generally be exported from a given construction site are salvaged where possible for recycled and ultimately reuse, thereby diverting this waste stream from the local landfill. This too will minimize the potential for OBMPU projects to generate waste in excess of local landfill capacities.

e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

<u>Project Category 1: Well Development and Monitoring Devices (PEs 1-9)</u>
This Project Category includes the development of ASR, injection, pumping, groundwater level monitoring, and groundwater quality wells, associated well housing, as well as monitoring devices such as flow meters and extensometers. The proposed wells and monitoring devices will be installed throughout the Chino Basin.

Implementation of proposed wells and monitoring devices would comply with all City and County construction and demolition requirements during construction of the proposed facilities as described above in the regulatory setting. All excavated soil would be hauled offsite by truck to an appropriately permitted solid waste facility. The daily amount of soil to be disposed per day would not exceed the maximum permitted throughput for each waste type (i.e., non-hazardous and hazardous). Any hazardous materials collected on a given OBMPU project site during either construction or operation will be transported and disposed of by a permitted and licensed hazardous materials service provider. As stated above under issue XIX(d), OBMPU projects would be required, through the implementation of mitigation measure **UTIL-2** to recycle construction and demolition materials beyond the mandated 50 percent diversion required by AB 939. Furthermore, mitigation measure **UTIL-3** would require further diversion through the recycling of soils where possible for future OBMPU projects. The proposed projects—development of wells and monitoring devices—would comply all federal, State, and local statues related to solid waste disposal. Therefore, the proposed OBMPU would result in less than significant construction impacts.

The Cities and County in which a given project would be located are required to comply with the California Integrated Waste Management Act of 1989, requiring diversion of solid waste from landfills through reuse and recycling. Facilities proposed as part of the OBMPU would be required to recycle as part of the projects' operational activities. As such, the proposed OBMPU facilities would comply with federal, state, and local management and reduction statutes and regulations related to solid waste. Impacts are less than significant.

Project Category 2: Conveyance Facilities and Ancillary Facilities (PEs 2, 4-9)
This category includes the construction of 550,000 LF of new pipelines, booster pump stations, reservoirs and minor appurtenances whose number. The proposed conveyance facilities and ancillary facilities would be implemented throughout the entire Chino Basin.

Impacts are the same as those identified under Project Category 1.

Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands (PEs 2, 4-5, 8/9)
This Project Category includes the construction of 310 acres of new storage basins—several locations for which are within existing facilities, improvements to existing storage basin(s), 200 acres of flood MAR facilities, new MS4-compliance facilities, and expansion of the maximum storage space (safe storage capacity) to be used within the Chino Basin from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af between this range of storage. The specific locations of the storage basins are described in the Project Description above; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

Impacts are the same as those identified under Project Categories 1 and 2.

The proposed expansion of the safe storage capacity from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward would not result in any visible above ground impacts beyond those facilities associated with the OBMPU designed to support this expansion as discussed herein. As such, the proposed expansion has no potential to violate federal, state, and local management and reduction statutes and regulations related to solid waste.

Project Category 4: Desalters and Water Treatment Facilities (PEs 2, 4-9)
The projects proposed under this category are: upgrades at IEUA's existing Treatment Plants (discussed in IEUA's 2017 FMP PEIR), a new advanced water treatment plant (discussed in IEUA's 2017 FMP PEIR), improvements to the WFA Agua de Lejos Treatment Plant, upgrades to the Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities. Stormwater construction/relocation impacts related to the facilities thoroughly analyzed as part of the IEUA's 2017 FMP PEIR will not be analyzed further as part of this Initial Study.

Impacts are the same as those identified under Project Categories 1, 2, and 3.

Level of Significance Before Mitigation: Potentially Significant

Mitigation Measures: Mitigation measures **UTIL-3 and UTIL-4** outlined under issue XIX(a) above are required.

Level of Significance After Mitigation: Less Than Significant

As stated under issue XIX(d) above, implementation of mitigation measures **UTIL-3 and UTIL-4** will ensure that recyclable waste streams are diverted from the local landfill, thereby ensuring compliance with the required 50 percent waste diversion mandated by the State.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
XX. WILDFIRE: If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☒	☐	☐
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of wildfire?	☐	☒	☐	☐
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☒	☐	☐
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☒	☐	☐

SUBSTANTIATION

This Section evaluates the environmental impacts under the new environmental issue of "Wildfire." The rationale for inclusion of this topic is not just the recent spate of severe wildfires, but to elevate the risk of wildfire to that of other major hazards, such as an active fault line or a flood hazard and the risk that society and future residents attracted to such areas incur from allowing humans to occupy areas with "high" risk. The "Wildfire" issue is also discussed under the Hazards and Hazardous Materials Section, Section IX, of this Initial Study.

XX.1 Existing Conditions

The highly urbanized portion of the Chino Basin and the Prado Wetlands have been designated by the Cal Fire as less than high or very high fire hazard severity zones. This is shown on the attached wildland fire Fire Hazard Severity Zone maps. Figures IX-1 through IX-4 show the fire hazard zones in the relevant portions of San Bernardino and Riverside Counties that encompass the Chino Basin. Almost all "high" or "severe" wildland fire hazard areas are located on the edges of the Chino Basin, or adjacent to isolated hills (Jurupa Hills) that interrupt the slope of the Chino Basin alluvial fan. As described below both the unmanned infrastructure proposed by the OBMPU and the location of this infrastructure occur in areas with at most moderated wildland fire hazards.

XX.2 Project Impact Analysis

The following issues are required to be analyzed if a project is located in or near a state responsibility area or lands classified as very high fire hazard severity zone. As noted above the location of OBMPU facilities would likely not be located in such an area but since many of the proposed OBMPU facilities sites have not yet been identified, it is possible that one or more future facilities could be required to locate within such areas. The following describes the potential impacts if an implementing agency selects such a site.

a. Substantially impair an adopted emergency response plan or emergency evacuation plan?

Please refer to the discussion under Emergency Plans under Section IX(f) and Section XVII. None of the OBMPU facility operations have a potential to adversely impact any emergency response plan or emergency evacuation plan. Construction activities in roadways does have a potential to effect routes to very high or high wildland fire hazard zones, but implementation of mitigation measures **HAZ-11, HAZ-12** and **TRAN-1** would reduce the potential for adverse impact to emergency response vehicles to a less than significant impact level. No further discussion of this adverse impacts under this issue is required. It is important to note that as an essential component of ensuring an adequate water supply over the next 30 years, the OBMPU provides emergency responders with a critical component, an adequate water supply, in controlling future wildland fires.

b. *Due to slope, prevailing winds, and other factors exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of wildfire?*

Please refer to the discussion under Emergency Plans under Section IX(f) and Section XVII, Transportation. None of the OBMPU facility operations have a potential to bring new project occupants into a high or very high wild fire hazard area. Therefore, implementation of the proposed OBMPU has no potential to expose any project occupants to pollutant concentrations from a wildfire. Also, no occupants would be exposed to the uncontrolled spread of a wildfire under the OBMPU. Implementation of mitigation measure **HAZ-12** will also minimize the exposure of future OBMPU facilities, that may have to be located within high or very high fire hazard areas, to severe damage or loss. Based on the preceding data, no adverse impact is forecast to occur under this issue.

c. *Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?*

Please refer to the discussion under Emergency Plans under Section IX(f) and Section XVII, Transportation. At this time no specific OBMPU infrastructure is proposed for areas designated as high or very high wildland fire hazard areas on the Fire Hazard Severity Zone maps provided on Figures IX-1 through IX-4. However, it is possible that OBMPU facilities could be implemented in the future in the Chino Hills area and on the alluvial slopes immediately south of the San Gabriel Mountains. Installation of OBMPU infrastructure in these locations could “exacerbate fire risk” in these areas; however, the implementation of measure **HAZ-12** would be implemented to reduce any contribution to greater fire risk to a less than significant impact level.

d. *Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?*

Please refer to the discussion under Emergency Plans under Section IX(f) and Section XVII, Transportation. As noted in the preceding discussion, no specific OBMPU infrastructure is proposed for areas designated as high or very high wildland fire hazard areas on the Fire Hazard Severity Zone maps provided on Figures IX-1 through IX-4. The most likely facilities are wells (Category 1 facilities), pipelines (Category 2 facilities) or a remote possibility of a new recharge basin (a Category 3 facility) at the northern-edge of the Chino Basin on the alluvial fans of the San Gabriel Mountains. Wells and pipelines have a small surface footprint that can be constructed to minimize potential fire hazards (as required by measure **HAZ-12**) and would not cause significant damage downstream from their location. A new recharge basin would reduce overall fuel load within its footprint and be self-contained from the standpoint of stormwater runoff and slope stability. Thus, based on this evaluation, the implementation of OBMPU infrastructure can be accomplished without causing potentially significant impacts with the implementation of measure **HAZ-12**.

<u>Combined Project Categories</u>

Level of Significance Before Mitigation: Potentially Significant.

Mitigation Measures: Implementation of Mitigation Measures **HAZ-11, HAZ-12** and **TRAN-1** are required in high and very high wildfire hazard areas. These are repeated below for ease of reference.

HAZ-11*:** ***Prior to initiating construction of proposed facilities, the implementing agency shall prepare and implement a Traffic Control Plan that contains comprehensive strategies

for maintaining emergency access. Strategies shall include, but are not limited to, maintaining steel trench plates at the construction sites to restore access across open trenches and identification of alternate routing around construction zones. In addition, police, fire, and other emergency service providers shall be notified of the timing, location, and duration of the construction activities and the location of detours and lane closures. The implementing agency shall ensure that the Traffic Control Plan and other construction activities are consistent with the San Bernardino County Operational Area Emergency Response Plan, and are reviewed and approved by the local agency with authori9ty over the roadways.

HAZ-12: ***During construction of facilities located in areas designated as High or Very High Fire Hazard Severity Zones (VHFHSZs) by CAL FIRE, fire hazard reduction measures shall be implemented and incorporated into a fire management plan for the proposed facility. These measures shall address all staging areas, welding areas, or areas slated for development that are planned to use spark-producing equipment. These areas shall be cleared of dried vegetation or other material that could ignite. Any construction equipment that includes a spark arrestor shall be equipped with a spark arrestor in good working order. During the construction of the project facilities, all vehicles and crews working at the project site to have access to functional fire extinguishers at all times. In addition, construction crews shall have a spotter during welding activities to look out for potentially dangerous situations, including accidental sparks. This plan shall be reviewed by CAL FIRE and approved prior to construction within high and very high severity zones and implemented once approved. The fire management plan shall also include sufficient defensible space or other measures at a facility site located in a high or very high fire severity area to minimize fire damage to a level acceptable to CAL FIRE.***

Furthermore, the Counties of Riverside and San Bernardino require businesses that use or store certain quantities of hazardous materials and submit a Hazardous Materials Business Plan (HMBP) that describes the hazardous materials usage, storage, and disposal to the Certified Unified Program Agency (CUPA). Further OBMPU facilities that meet these criteria must prepare an HMBP pursuant to the applicable local agency.

TRAN-1: ***For projects that may affect traffic flow along existing roadways, the implementing agency shall require that contractors prepare a construction traffic control plan. Elements of the plan should include, but are not necessarily limited to, the following:***

- ***Develop circulation and detour plans, if necessary, to minimize impacts to local street circulation. Use haul routes minimizing truck traffic on local roadways to the extent possible.***
- ***To the extent feasible, and as needed to avoid adverse impacts on traffic flow, schedule truck trips outside of peak morning and evening commute hours.***
- ***Install traffic control devices as specified in Caltrans' Manual of Traffic Controls for Construction and Maintenance Work Zones where needed to maintain safe driving conditions. Use flaggers and/or signage to safely direct traffic through construction work zones.***
- ***For roadways requiring lane closures that would result in a single open lane, maintain alternate one-way traffic flow and utilize flagger-controls.***
- ***Coordinate with facility owners or administrators of sensitive land uses such as police and fire stations, hospitals, and schools. Provide advance notification to the facility owner or operator of the timing, location, and duration of construction activities.***

Level of Significance After Mitigation: Less than Significant

The implementation of Mitigation Measure **HAZ-12** would ensure implementation of fire hazard reduction measures during construction in areas designated as VHFHSZs to reduce the potential for wildfire impacts on people or structures to a less than significant impact. Operational impacts would also be reduced to a less than significant impact.

Cumulative Impact Analysis

The Chino Basin is largely urbanized with residential, commercial and industrial development. As the service area continues to develop, the addition of more development could expose people or structures to a significant risk of loss, injury or death involving wildland fires. Since there would be potential for OBMPU projects to be located within or adjacent to areas with high wildland fire risks, impacts would be cumulatively considerable and therefore, would result in a potentially significant cumulative impact.

*Cumulative Measures: Implementation of Mitigation Measure **HAZ-12** is required in high and very high wildfire hazard areas.*

Level of Significance After Mitigation: Less than Significant

The implementation of Mitigation Measure **HAZ-12** would ensure that the proposed facilities' contribution to cumulative impacts related to wildfires would be reduced to less than cumulatively considerable by implementing fire hazard reduction measures during construction and operations in areas designated as VHFHSZs to reduce the potential for wildfire impacts on people or structures.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
XXI. MANDATORY FINDINGS OF SIGNIFICANCE:				
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☒	☐	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☒	☐	☐	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☒	☐	☐	☐

SUBSTANTIATION

a. *Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?*

This Initial Study has been used to evaluate environmental issues to determine whether an issue has a potential to cause a potentially significant adverse impact, which would require the issue to be evaluated in an environmental impact report. Based on the preliminary findings regarding biological resources and cultural resources, these two issues do have a potential to experience a significant adverse environmental impact and the biological resource and cultural resource issues (including tribal cultural resources) will be evaluated as issues of focus in an Environmental Impact Report (EIR) for the Chino Basin Optimum Basin Management Program Update (OBMPU).

b. *Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?*

Many, but not all, environmental issues have a cumulative quality that reflects the effects of past projects and collective projects proposed in the same time period for a specific environmental issue. The following issues are considered to have cumulative characteristics: agriculture, air quality, biology, cultural resources, energy, greenhouse gases, hydrology and water quality, mineral resources, noise, population and housing, public services, recreation, traffic, utilities and service systems, and wildfire. Of these environmental issues the following were found to have a less than significant impact on the environment, most often with mitigation: agriculture, mineral resources, noise, population and housing, public services, recreation, traffic, some of the utilities and service systems, and wildfire. The following environmental issues have been identified as having the potential to contribute to cumulatively considerable (significant) impacts on the natural and man-made environment: air quality, biology, cultural resources, energy, greenhouse gases, hydrology and water quality, and some of the utilities and service issues. These issues will all be evaluated in the EIR that will be prepared to determine whether these issues may cause a cumulatively considerable adverse impact on the environment.

c. *Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?*

Certain environmental effects include elements or characteristics that can have a direct or indirect substantial adverse impact on the human population of the Chino Basin. Simple examples include flood hazards and earthquake hazards. The following issues are considered to have the potential to cause substantial adverse environmental effects on human beings: aesthetics, air quality, geology and soils, greenhouse gases, hazards and hazardous materials, hydrology and water quality, land uses, noise, public services, utilities and service systems, and wildfire. Of these environmental issues, the following were found to have a less than significant impact on the environment, most often with mitigation: aesthetics, geology and soils, hazards and hazardous materials, land uses, noise, public services, some of the utilities and service systems, and wildfire. The following environmental issues have been identified as having the potential to significant adverse effects on humans: air quality, greenhouse gases, hydrology and water quality, and some of the utilities and service issues. These issues will all be evaluated in the PEIR that will be prepared to determine whether these issues may cause substantial adverse effects on humans.

Conclusion

Based on the findings in this Initial Study, IEUA will distribute this document and a Notice of Preparation (NOP) of the Chino Basin OBMPU EIR for public review and comment. Due to the size of this proposed project, a public scoping meeting will be held as indicated in the NOP that accompanies this Initial Study. The following environmental issues will be evaluated in the Draft OBMPU EIR: **air quality, biology resources, cultural resources, energy, greenhouse gases, hydrology and water quality, tribal cultural resources, and certain water issues under the utilities and service system topic.**

Note: Authority cited: Sections 21083 and 21083.05, Public Resources Code. Reference: Section 65088.4, Gov. Code; Sections 21080(c), 21080.1, 21080.3, 21083, 21083.05, 21083.3, 21093, 21094, 21095, and 21151, Public Resources Code; *Sundstrom v. County of Mendocino*,(1988) 202 Cal.App.3d 296; *Leonoff v. Monterey Board of Supervisors*, (1990) 222 Cal.App.3d 1337; *Eureka Citizens for Responsible Govt. v. City of Eureka* (2007) 147 Cal.App.4th 357; *Protect the Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th at 1109; San *Franciscans Upholding the Downtown Plan v. City and County of San Francisco* (2002) 102 Cal.App.4th 656.

Revised 2019
Authority: Public Resources Code sections 21083 and 21083.09
Reference: Public Resources Code sections 21073, 21074, 21080.3.1, 21080.3.2, 21082.3/ 21084.2 and 21084.3

SUMMARY OF MITIGTION MEASURES

Aesthetics

AES-1: Proposed facilities shall be designed in accordance with local design standards and integrated with local surroundings. Landscaping shall be installed in conformance with local landscaping design guidelines as appropriate to screen views of new facilities and to integrate facilities with surrounding areas.

AES-2: The Mills Wetland Storage Basin Project shall be designed to include landscaping commensurate with the existing pastoral setting that exists at this site at present.

AES-3: Future regional groundwater treatment facilities and other proposed facilities defined within the OBMPU at unknown locations shall either (1) Be located outside of scenic viewsheds identified in the General Plan or Municipal Code corresponding to a proposed location for a future facility, or (2) Undergo subsequent CEQA documentation to assess potential impacts from locating a future facility in an area that may contain scenic resources.

AES-4: Should the removal of trees be required for a specific project, the implementing agency shall comply with the local jurisdiction's tree ordinance, municipal code, or other local regulations. If no tree ordinance exists within the local jurisdiction, and a project will remove healthy trees as defined by a qualified arborist, (1) the implementing agency shall replace all trees removed at a 1:1 ratio, and (2) The specific location selected for a well shall avoid rock outcroppings and other scenic resources. If this cannot be accomplished a second tier CEQA evaluation shall be completed.

AES-5: Future proposed facilities defined within the OBMPU at unknown locations shall either (1) Be located within sites that avoid rock outcroppings and other scenic resources, or (2) Undergo subsequent CEQA documentation to assess potential impacts from locating a future facility in an area that may contain scenic resources.

AES-6: OBMPU facility implementation will conform with design requirements established in the local jurisdiction planning documents, including but not limited to the applicable zoning code, except where such requirements conflict with the purpose or function of such facilities.

AES-7: When OBMPU above ground facilities are constructed in the future, the local agency design guidelines for the project site shall be followed to the extent that they do not conflict with the engineering and budget constraints established for the facility.

AES-8: Future OBMPU projects shall implement the following:

- Use of low-pressure sodium lights where security needs require such lighting to minimize impacts of glare; Projects within a 45-mile radius of the Mount Palomar Observatory <u>and</u> located within Riverside County must adhere to special standards set by the County of Riverside relating to the use of low-pressure sodium lights.
- The height of lighting fixtures shall be lowered to the lowest level consistent with the purpose of the lighting to reduce unwanted illumination.
- Directing light and shielding shall be used to minimize off-site illumination.
- No light shall be allowed to intrude into sensitive light receptor areas.

Agriculture and Forestry Resources

AGF-1 For all proposed facilities in the southern portion of the Chino Basin (south of SH 60), the potential for impact to important farmlands shall be determined prior to final site election. If important farmland cannot be avoided and individually exceeds 5 acres or cumulatively exceeds 10 acres of important farmland lost to agricultural production over the life of the program, the agency implementing the project shall purchase compensatory mitigation in the form of comparable important farmland permanently conserved in either a local or State-approved important farmland mitigation bank at a mitigation ratio of 1:1. The acquisition of this compensatory mitigation shall be completed within one year of initiating construction of the proposed facility and verification shall be documented with the Chino Basin Watermaster.

AGF-2 For all proposed facilities in the southern portion of the Chino Basin (south of SH 60), the potential for impact to important farmlands shall be determined prior to final site election. If important farmland cannot be avoided and individually exceeds 5 acres or cumulatively exceeds 10 acres of important farmland lost to agricultural production over the life of the program, the agency implementing the project shall relocate and avoid the site, or alternatively the agency shall conduct a California Land Evaluation and Assessment (LESA) model evaluation. If the evaluation determines the loss of important farmland will occur, the agency shall purchase compensatory mitigation in the form of comparable important farmland permanently conserved in either a local or State-approved important farmland mitigation bank at a mitigation ratio of 1:1. The acquisition of this compensatory mitigation shall be completed within one year of initiating construction of the proposed facility and verification shall be documented with the Chino Basin Watermaster.

AGF-3 For all proposed facilities that may impact riparian woodland/forest land in the portion of the Chino Basin (SH 60), the potential for impact forest land shall be determined prior to final site election. If important forest land cannot be avoided and permanently will exceed 5 acres in area, the agency implementing the project shall relocate and avoid the site, or alternatively the agency shall conduct an evaluation to determine if it qualifies with the State definition of "forest land." If the evaluation determines the permanent loss of important forestland will occur, the agency shall purchase compensatory mitigation in the form of comparable forest land permanently conserved in either a local or State-approved important forest land mitigation bank at a mitigation ratio of 1:1. Alternatively, the agency may carry out a forest land creation program at a 1:1 ratio for comparable woodland. The acquisition or creation of this compensatory mitigation shall be completed/initiated within one year of initiating construction of the proposed facility and verification shall be documented with the Chino Basin Watermaster.

Geology and Soils

GEO-1: If a specific project is proposed within a designated Alquist-Priolo Fault Zone, the facility shall be relocated, if possible. If relocation is not possible, the project shall be designed in accordance with the CBC and according to the recommendations generated by a project specific geotechnical study. If the project specific geotechnical study cannot mitigate potential seismic related impacts, then a second tier CEQA evaluation shall be completed.

GEO-2: Prior to construction of each improvement, a design-level geotechnical investigation, including collection of site-specific subsurface data if appropriate, shall be completed. The geotechnical evaluation shall identify all potential seismic hazards including fault rupture, and characterize the soil profiles, including liquefaction potential, expansive soil potential, subsidence, and landslide potential. The geotechnical investigation shall recommend site-specific design criteria to mitigate for seismic and non-seismic hazards, such as special foundations and structural setbacks, and these recommendations shall be incorporated into the design of individual proposed projects.

GEO-3: For each well development or other OBMPU projects that is less than one acre in size requiring ground disturbing activities such as grading, the Implementing Agency shall identify best management practices (BMPs, such as hay bales, wattles, detention basins, silt fences, coir rolls, etc.) to ensure that the discharge of the storm runoff from the construction site does not cause erosion downstream of the discharge point. If any substantial erosion or sedimentation occurs as a result of discharging storm water from a project construction site, any erosion or sedimentation damage shall be restored to pre-discharge conditions.

GEO-4: For project-level development involving ground disturbance, a qualified paleontologist shall be retained to determine the necessity of conducting a study of the project area(s) based on the potential sensitivity of the project site for paleontological resources. If deemed necessary, the paleontologist shall conduct a paleontological resources inventory designed to identify potentially significant resources. The paleontological resources inventory would consist of: a paleontological resource records search to be conducted at the San Bernardino County Museum and/or other appropriate facilities; a field survey or monitoring where deemed appropriate by the paleontologist; and recordation of all identified paleontological resources.

<u>Hazards and Hazardous Materials</u>

HAZ-1: For OBMPU facilities that handle hazardous materials or generate hazardous waste, the Business Plan prepared and submitted to the county or local city shall incorporate best management practices designed to minimize the potential for accidental release of such chemicals. The facility managers shall implement these measures to reduce the potential for accidental releases of hazardous materials or wastes

HAZ-2: The business plan shall assess the potential accidental release scenarios and identify the equipment and response capabilities required to provide immediate containment, control and collection of any released material. Adequate funding shall be provided to acquire the necessary equipment, train personnel in responses and to obtain sufficient resources to control and prevent the spread of any accidentally released hazardous or toxic materials.

HAZ-3: For the storage of any acutely hazardous material at an OBMPU facility, such as chlorine gas, modeling of pathways of release and potential exposure of the public to any released material shall be completed and specific measures, such as secondary containment, shall be implemented to ensure that sensitive receptors will not be exposed to significant health threats based on the toxic substance involved.

HAZ-4: All hazardous contaminated material shall be delivered to a licensed treatment, disposal or recycling facility that has the appropriate systems to manage the contaminated material without significant impact on the environment

HAZ-5: Before determining that an area contaminated as a result of an accidental release is fully remediated, specific thresholds of acceptable clean-up shall be established and sufficient samples shall be taken within the contaminated area to verify that these clean-up thresholds have been met.

HAZ-6: Vector management plans shall be prepared and use of pesticides shall be reviewed and coordinated with the West Valley Mosquito and Vector Control District for approval prior to implementing vector control at any of the new or expanded storage basins. All pesticides shall be applied in accordance with State and label requirements to minimize potential for residual concentrations that may be considered adverse to public health and water quality.

HAZ-7: All accidental spills or discharge of hazardous material during construction activities shall be reported to the County Fire Department and shall be remediated in compliance with applicable state and local regulations regarding cleanup and disposal of the contaminant released. The contaminated waste will be collected and disposed of at an appropriately licensed disposal or treatment facility. This measure shall be incorporated into the SWPPP prepared or each future facility developed under the OBMPU PEIR. Prior to accepting the site as remediated, the area contaminated shall be tested to verify that any residual concentrations meet the standard for future residential or public use of the site.

HAZ-8: Prior to final site selection for future OBMPU facilities, the implementing agency shall obtain a Phase I Environmental Site Assessment (ESA)for the selected site. If a site contains contamination the agency shall either avoid the site by selecting an alternative location or shall remove any contamination (remediate) at the site to a level of concentration that eliminates hazard to employees working at the site and that will not conflict with the installation and future operation of the facility. For sites located on agricultural land, this can include soil contaminated with unacceptable concentrations of pesticides or herbicides that shall be remediated through removal or blending to reduce concentrations below thresholds of significance established for the particular pesticide or herbicide.

HAZ-9: Should an unknown contaminated site be encountered during construction of OBMPU facilities, all work in the immediate area shall cease; the type of contamination and its extent shall be determined; and the local CUPA or other regulatory agencies (such as the DTSC or Regional Board) shall be notified. Based on investigations of the contamination, the site may be closed and avoided or the contaminant(s) shall be remediated to a threshold acceptable to the CUPA or other regulatory agency threshold and any contaminated soil or other material shall be delivered to an authorized treatment or disposal site.

HAZ-10: Prior to finalizing sit selection of an OBMPU facility with an airport safety zone, input from the affected airport management entity shall solicited. For projects within airport safety zones, facility design shall follow the guidelines of the appropriate airport land use plan to the extent feasible. If legitimate safety hazards are identified, the implementing agency shall relocate the facility outside the area of conflict if feasible, or if the site is deemed essential, the implementing agency shall propose an alternative design that reduces any conflict to a less than significant level of conflict. As an example, a pump station or reservoir could be installed below ground instead of above ground.

HAZ-11: Prior to initiating construction of proposed facilities, the implementing agency shall prepare and implement a Traffic Control Plan that contains comprehensive strategies for maintaining emergency access. Strategies shall include, but are not limited to, maintaining steel trench plates at the construction sites to restore access across open trenches and identification of alternate routing around construction zones. In addition, police, fire, and other emergency service providers shall be notified of the timing, location, and duration of the construction activities and the location of detours and lane closures. The implementing agency shall ensure that the Traffic Control Plan and other construction activities are consistent with the San Bernardino County Operational Area Emergency Response Plan, and are reviewed and approved by the local agency with authority over the roadways.

HAZ-12: During construction of facilities located in areas designated as High or Very High Fire Hazard Severity Zones (VHFHSZs) by CAL FIRE, fire hazard reduction measures shall be implemented and incorporated into a fire management plan for the proposed facility. These measures shall address all staging areas, welding areas, or areas slated for development that are planned to use spark-producing equipment. These areas shall be cleared of dried vegetation or other material that could ignite. Any construction equipment that includes a spark arrestor shall be equipped with a spark arrestor in good working order. During the construction of the project facilities, all vehicles and crews working at the project site to have access to functional fire extinguishers at all times. In addition, construction crews shall have a spotter during welding activities to look out for potentially dangerous situations, including accidental sparks. This plan shall be reviewed by CAL FIRE and approved prior to construction within high and very high severity zones and implemented once approved. The fire management plan shall also include sufficient defensible space or other measures at a facility site located in a high or very high fire severity area to minimize fire damage to a level acceptable to CAL FIRE.

Furthermore, the Counties of Riverside and San Bernardino require businesses that use or store certain quantities of hazardous materials and submit a Hazardous Materials Business Plan (HMBP) that describes the hazardous materials usage, storage, and disposal to the Certified Unified Program Agency (CUPA). Further OBMPU facilities that meet these criteria must prepare an HMBP pursuant to the applicable local agency.

Land Use and Planning

LU-1: Following selection of sites for future OBMPU-related facilities, each site and associated facility shall be evaluated for potential incompatibility with adjacent existing or proposed land uses. Where future facility operations can create significant incompatibilities (lighting, noise, use of hazardous materials, traffic, etc.) with adjacent uses, an alternative site shall be selected, or subsequent CEQA documentation shall be prepared that identifies the specific measures that will be utilized to reduce potential incompatible activities or effects to below significance thresholds established in the general plan for the jurisdiction where the facility will be located.

Mineral Resources

MR-1: For each new groundwater treatment facility (regionally located or near existing well sites), Flood MAR facility, and MS4 compliance site, the Implementing Agency shall locate these facilities outside of sites designated for the extraction of or as containing significant mineral resources (such as, located within MRZ-2 zones) or otherwise identified by the local jurisdiction as containing important mineral resources (such as, designated by the local general plan as being located within a mineral extraction related land use). Where it is not feasible to locate such facilities outside of sites designated for mineral resources, a subsequent CEQA documentation shall be prepared that identifies specific measures that compensates for the loss of mineral resources.

Noise

NOI-1: The Watermaster and/or Implementing Agency shall implement the following measures during construction:

- Include design measures where feasible to reduce the construction noise levels if necessary to comply with local noise ordinances. These measures may include, but are not limited to, the erection of noise barriers/curtains, use of advanced or state-of-the-art mufflers on construction equipment, and/or reduction in the amount of equipment that would operate concurrently at the construction site.
- Place noise and groundborne vibration-generating construction activities whose specific location on a construction site may be flexible (e.g., operation of compressors and generators, cement mixing, general truck idling) as far as possible from the nearest noise- and vibration-sensitive land uses such as residences, schools, and hospitals.
- Minimize the effects of equipment with the greatest peak noise generation potential via shrouding or shielding to the extent feasible. Examples include the use of drills, pavement breakers, and jackhammers.
- Locate stationary construction noise sources as far from adjacent noise-sensitive receptors as possible, and require that these noise sources be muffled and enclosed within temporary sheds, insulation barriers if necessary to comply with local noise ordinances.
- Provide noise shielding and muffling devices on construction equipment per the manufacturer’s specifications.
- If construction is to occur near a school, the construction contractor shall coordinate the with school administration in order to limit disturbance to the campus. Efforts to limit construction activities to non-school days shall be encouraged.
- For major construction projects, identify a liaison for surrounding residents and property owners to contact with concerns regarding construction noise and vibration. The liaison’s telephone number(s) shall be prominently displayed at construction locations.
- For major construction projects, notify in writing all landowners and occupants of properties adjacent to the construction area of the anticipated construction schedule at least two weeks prior to groundbreaking.
- Construction activities shall occur within the hours considered to be acceptable for construction by the applicable jurisdiction within which an individual project is constructed, except for activities, such as well drilling which are continuous, and for emergencies. Where no such restrictions are in place that limit hours of construction, construction shall

be limited to the hours of 7 AM and 6 PM on weekdays, 8 AM and 5 PM on Saturdays, and at no time shall construction activities occur on Sundays or holidays, unless a declared emergency exists.

NOI-2: The Watermaster and/or Implementing Agency shall require that all OBMPU-related aboveground facilities that include stationary noise generating equipment (such as emergency generators, blowers, pumps, motors, etc.) to minimize their audible noise levels by locating equipment away from noise-sensitive receptor areas, installing proper acoustical shielding for the equipment, and incorporating the use of parapets into building design to meet the applicable City or County noise level requirements at neighboring property lines.

NOI-3: For construction activities during non-standard working hours or hours that are not exempt from compliance with applicable City or County noise ordinances (e.g., 24-hour well drilling), the Watermaster and/or Implementing Agency will secure a noise waiver from the appropriate jurisdiction if available.

NOI-4: Injection and extraction wells shall be located as far from sensitive receptors as feasible. If new wells are to be constructed in the immediate vicinity of sensitive receptors, construction specification requirements shall include installation and maintenance of a temporary noise barrier (e.g. engineered sound wall or noise blanket) during 24-hour construction activities, to the extent feasible if necessary to comply with local noise ordinances. Specifications shall include use of appropriate materials that shall be installed to a height that intercepts the line of sight between the construction site and sensitive receptors in order to achieve maximum attenuation in an attempt to decrease construction area noise to as close as ambient noise levels as possible. Furthermore, where new wells are located adjacent to sensitive receptors, wells and any other associated noise generating facilities (i.e. associated treatment facilities, pumps, generators, etc.) shall be enclosed within a structure to attenuate noise to an acceptable level at the nearest sensitive receptor.

NOI-5: The Watermaster and/or Implementing Agency shall require the construction contractor(s) to implement the following measure:

- Ensure that the operation of construction equipment that generates high levels of vibration including, but not limited to, large bulldozers, loaded trucks, pile-drivers, vibratory compactors, and drilling rigs, is minimized within 45 feet of existing residential structures and 35 feet of institutional structures (e.g., schools) during construction of the various OBMPU projects. Use of small rubber-tired bulldozers shall be enforced within these areas during grading operations to reduce vibration effects.
- The construction contractor for any individual OBMPU project shall provide signs along the roadway identifying a phone number for adjacent property owners to contact with any complaint. During future construction activities for any individual OBMPU project with heavy equipment within 300 feet of occupied residences, vibration field tests shall be conducted at the property line near the nearest occupied residences. To the extent feasible, if vibrations exceed 72 VdB, the construction activities shall be revised to reduce vibration below this threshold. These measures may include, but are not limited to the following: use different construction methods, slow down construction activity, or other mitigating measures to reduce vibration at the property from where the complaint was received.

NOI-6: Where an OBMPU project would be constructed adjacent to an existing or potential historic building, the Watermaster and/or Implementing Agency shall require, through contract specifications, a certified structural engineer to be retained to submit evidence that the operation of vibration-generating equipment associated with the construction activities would not result in any structural damage to the adjacent historic building. Contract specifications shall be included in the construction documents for the applicable OBMPU project development.

NOI-7: Where an OBMPU project would be constructed within 2 miles of a public airport, any new indoor facilities should be retrofitted to minimize noise to a level that is within OSHA's permissible exposure limit (PEL). Employees working outside at an OBMPU project, either during construction or operation, shall be provided with ear protection to minimize noise to a level that is below OSHA's PEL to be utilized during periods of excessive noise caused by any aircraft overflights.

Population and Housing

POP-1: If future OBMPU facilities must be located on parcels occupied by existing housing, the proponent of the facility will ensure that short- and long-term housing of comparable quality and value are made available to the home owner(s) prior to initiating construction of the facility.

Public Services

PS-1: OBMPU facilities shall be fenced or otherwise have access controlled to prevent illegal trespass to attractive nuisances, such as construction sites or recharge sites.

PS-2: OBMPU facilities proposed to be located within vacant parkland or OBMPU facilities proposed to be located within existing park or recreation facilities that would require more than one acre of disturbance shall be either (1) Relocated to avoid significant impacts to parkland or (2) Shall provide supplemental parkland within the corresponding jurisdiction equal or greater to the amount of parkland or recreation facilities lost as a result of implementation of the OBMPU facility.

Recreation

REC-1: The Watermaster or Implementing Agency shall prepare subsequent CEQA documentation for any Park or Recreation facilities required to be developed as part of implementation of mitigation measure PS-2—i.e., in the event an OBMPU Facility would be result in loss of parkland or recreation facilities.

Transportation

TRAN-1: For projects that may affect traffic flow along existing roadways, the implementing agency shall require that contractors prepare a construction traffic control plan. Elements of the plan should include, but are not necessarily limited to, the following:

- Develop circulation and detour plans, if necessary, to minimize impacts to local street circulation. Use haul routes minimizing truck traffic on local roadways to the extent possible.
- To the extent feasible, and as needed to avoid adverse impacts on traffic flow, schedule truck trips outside of peak morning and evening commute hours.
- Install traffic control devices as specified in Caltrans' Manual of Traffic Controls for Construction and Maintenance Work Zones where needed to maintain safe driving conditions. Use flaggers and/or signage to safely direct traffic through construction work zones.
- For roadways requiring lane closures that would result in a single open lane, maintain alternate one-way traffic flow and utilize flagger-controls.
- Coordinate with facility owners or administrators of sensitive land uses such as police and fire stations, hospitals, and schools. Provide advance notification to the facility owner or operator of the timing, location, and duration of construction activities.

Utilities and Service Systems

UTIL-1 The Watermaster or Implementing Agency shall prepare subsequent CEQA documentation for the Agua de Lejos Treatment Plant and upgrades to the Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites once specific improvements or facility locations have been identified, and design of such improvements or new facilities has been drafted.

UTIL-2 Implementation of a Drainage Plan to Reduce Downstream Flows. Prior to construction of project facilities, the Watermaster or Implementing Agency shall prepare a drainage plan that includes design features to reduce stormwater peak concentration flows exiting the above ground facility sites (consistent with MS4 requirements) so that the capacities of the existing downstream drainage facilities are not exceeded. These design features could include bio-retention, sand infiltration, return of stormwater for treatment within the treatment plant, and/or detention facilities.

UTIL-3 The contract with demolition and construction contractors for a given OBMPU Project shall include the requirement that all materials that can feasibly be recycled shall be salvaged and recycled. This includes but is not limited to wood, metals, concrete, road base and asphalt. The contractors for a given OBMPU Project shall submit a recycling plan to the Watermaster or Implementing Agency for review and approval prior to the construction of demolition/construction activities.

UTIL-4 The contract with demolition and construction contractors for a given OBMPU Project shall include the requirement that all soils that are planned to be exported from the site that can feasibly be recycled shall be recycled for re-use; alternatively, soils shall be reused on site to balance soil import/export.

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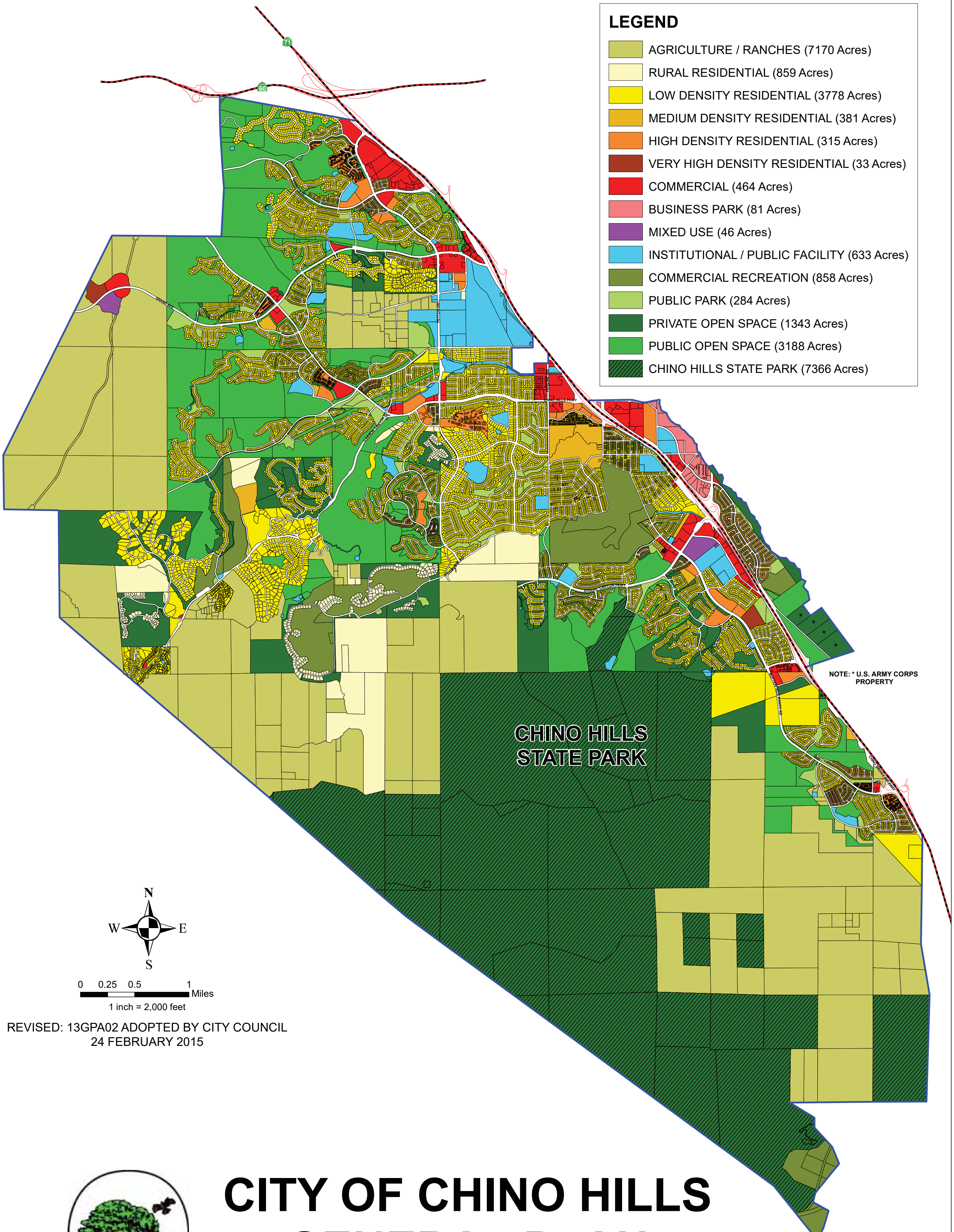
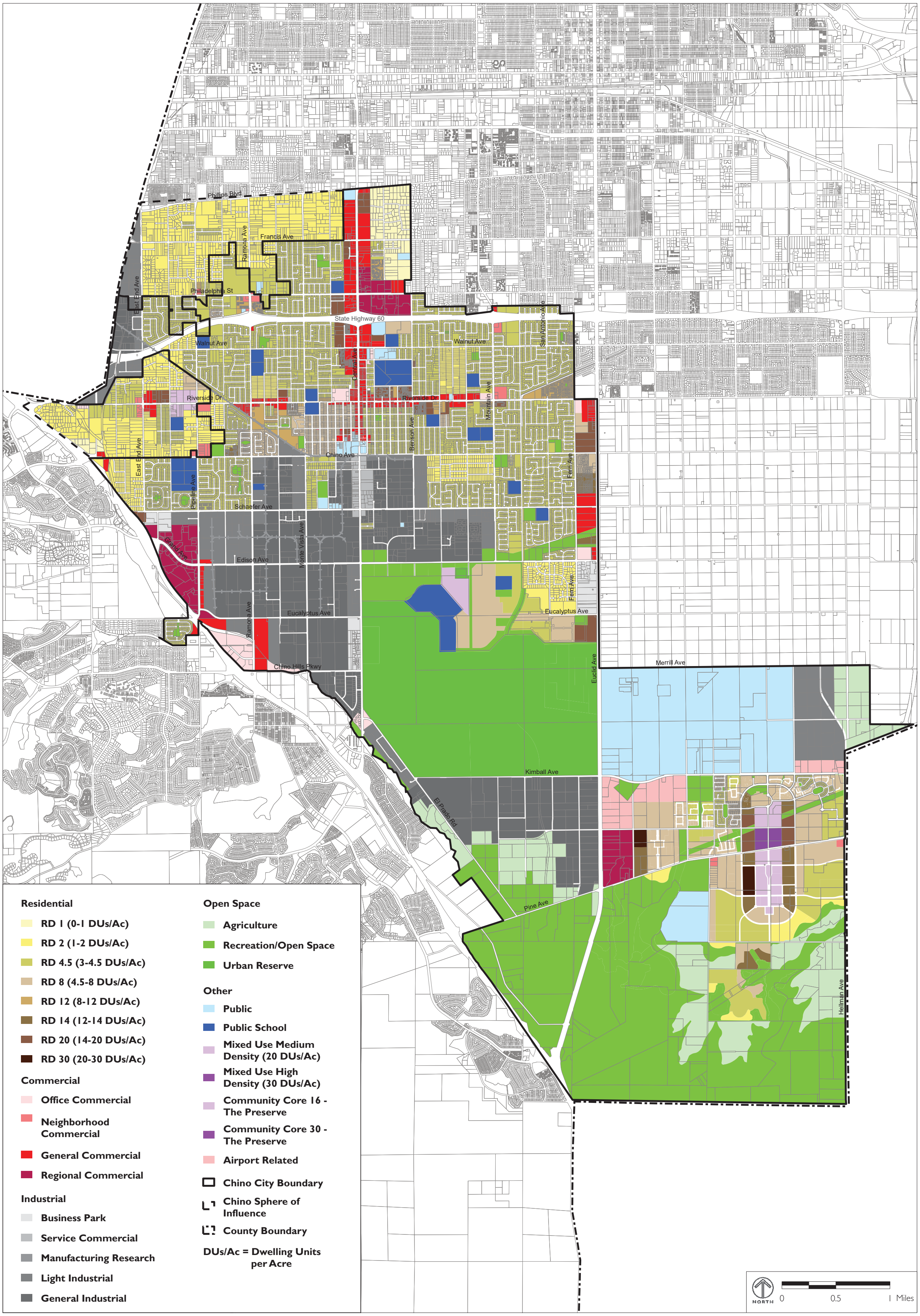
ATTACHMENT 1

GENERAL PLAN MAPS



CITY OF CHINO HILLS GENERAL PLAN LAND USE



Note: General Plan land use designations in Specific Plan areas have been aggregated into General Plan categories for clarity on this map.

FIGURE LU-2

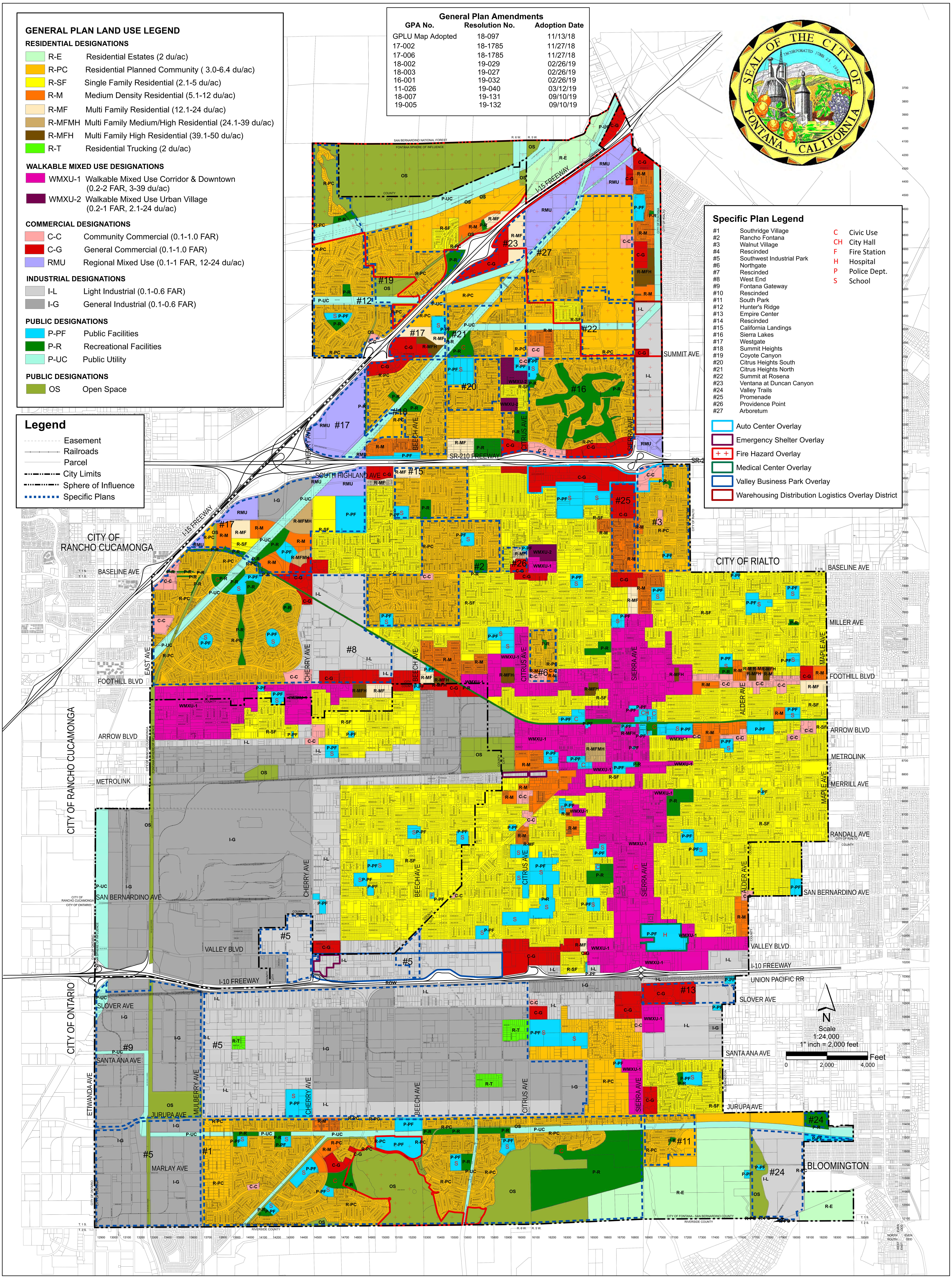
GENERAL PLAN LAND USE DESIGNATIONS

City of Eastvale
General Plan
Low Density Residential
Medium Density Residential
Medium High Density Residential
High Density Residential
Highest Density Residential
Commercial Retail
Light Industrial
Business Park
Public Facilities
Agriculture
Conservation
Open Space Recreation
Water
Leal Policy Area
Freeway
Airport Influence Areas*
*Development in these areas may be subject to restrictions based on the most recently adopted version of the Chino or Ontario Airport Land Use Compatibility Plans. Please consult the applicable plan for detailed information.
0
0.5
1
2
Miles
N
San Bernardino County
Riverside County
Ontario Airport Influence Area
Chino Airport Influence Area
ONTARIO
CHINO
JURUPA VALLEY
NORCO
CORONA
LAKE NORCONIAN
SANTA ANA RIVER
EUCALYPTUS AVE
MERRILL AVE
REMINGTON ST
KIMBALL AVE
BICKMORE AV
PINE AVE
CHINO-CORONA RD
RIVER RD
GROVE AVE
HAMNER AVE
LIMONITE AVE
SCHLEISMAN RD
CHANDLER ST
CITRUS ST
65TH ST
ARCHIBALD AVE
HARRISON AVE
SUMNER AVE
CANTU-GALLEANO RANCH RD
BELLEGRAVE AVE
RIVERSIDE DR
WINEVILLE RD
PATS RANCH RD
HOLMES AVE
NORCO DR
6TH ST
5TH ST
HILLSIDE AVE
CALIFORNIA AVE
CORYDON AVE
2ND ST
15
60
Revision: 4/29/2019

City of Fontana, State of California

GENERAL PLAN LAND USE MAP

Adopted: September 10, 2019



Map Disclaimer

The data provided hereon may be inaccurate or out of date and any person or entity who relies on said information for any purpose whatsoever does so solely at his or her own risk. Neither the City of Fontana nor any agency, officer, or employee of either nor of any information provider warrants the accuracy, reliability of timeliness of any of the data provided hereon. THIS INFORMATION IS PROVIDED 'AS IS' WITHOUT WARRANTY OF ANY KIND INCLUDING BY WAY OF ILLUSTRATION AND NOT OF LIMITATION THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT.

City of Fontana
IT Department / GIS
General Plan Land Use.mxd

BASEMAP UPDATE AUGUST 2019

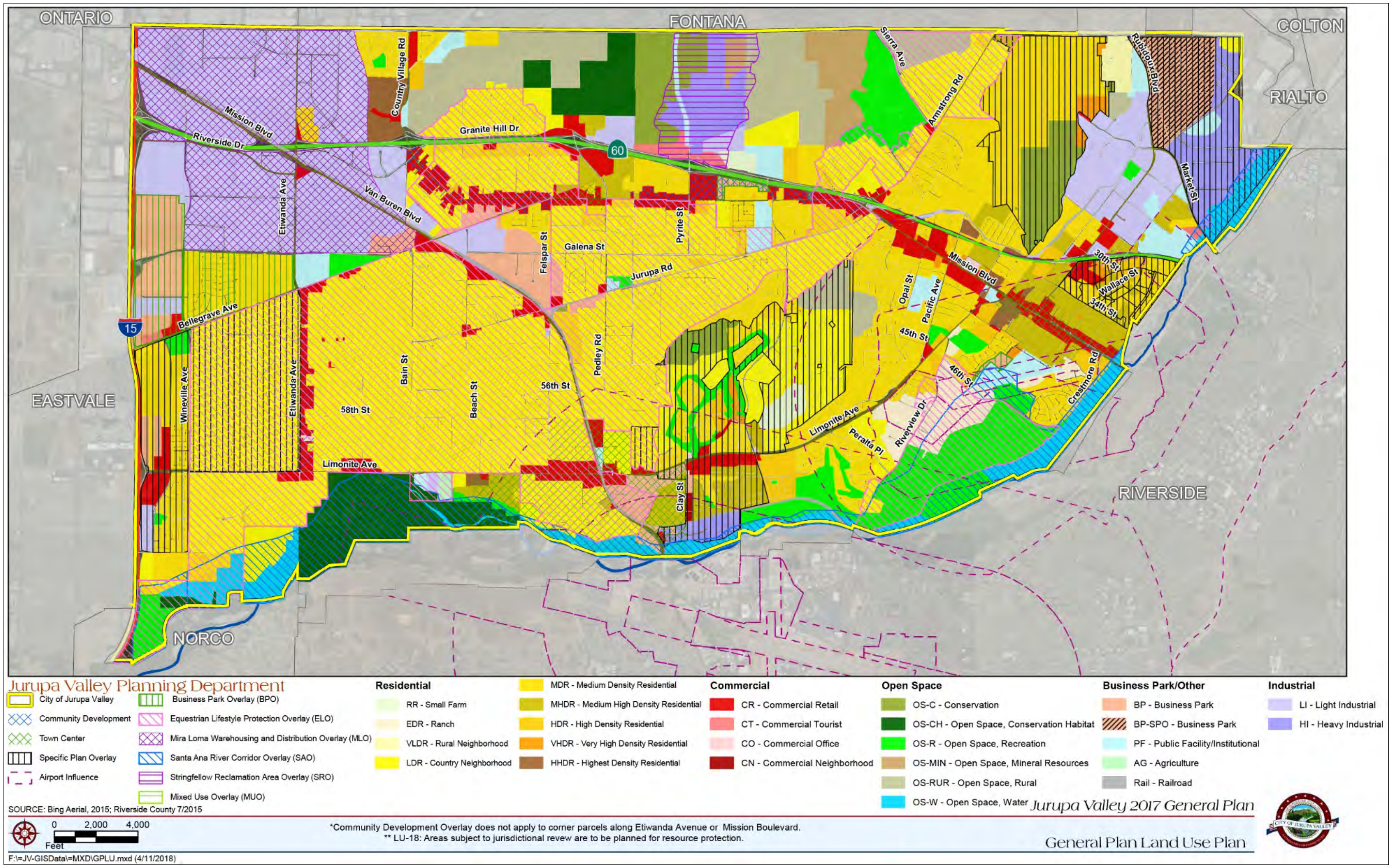
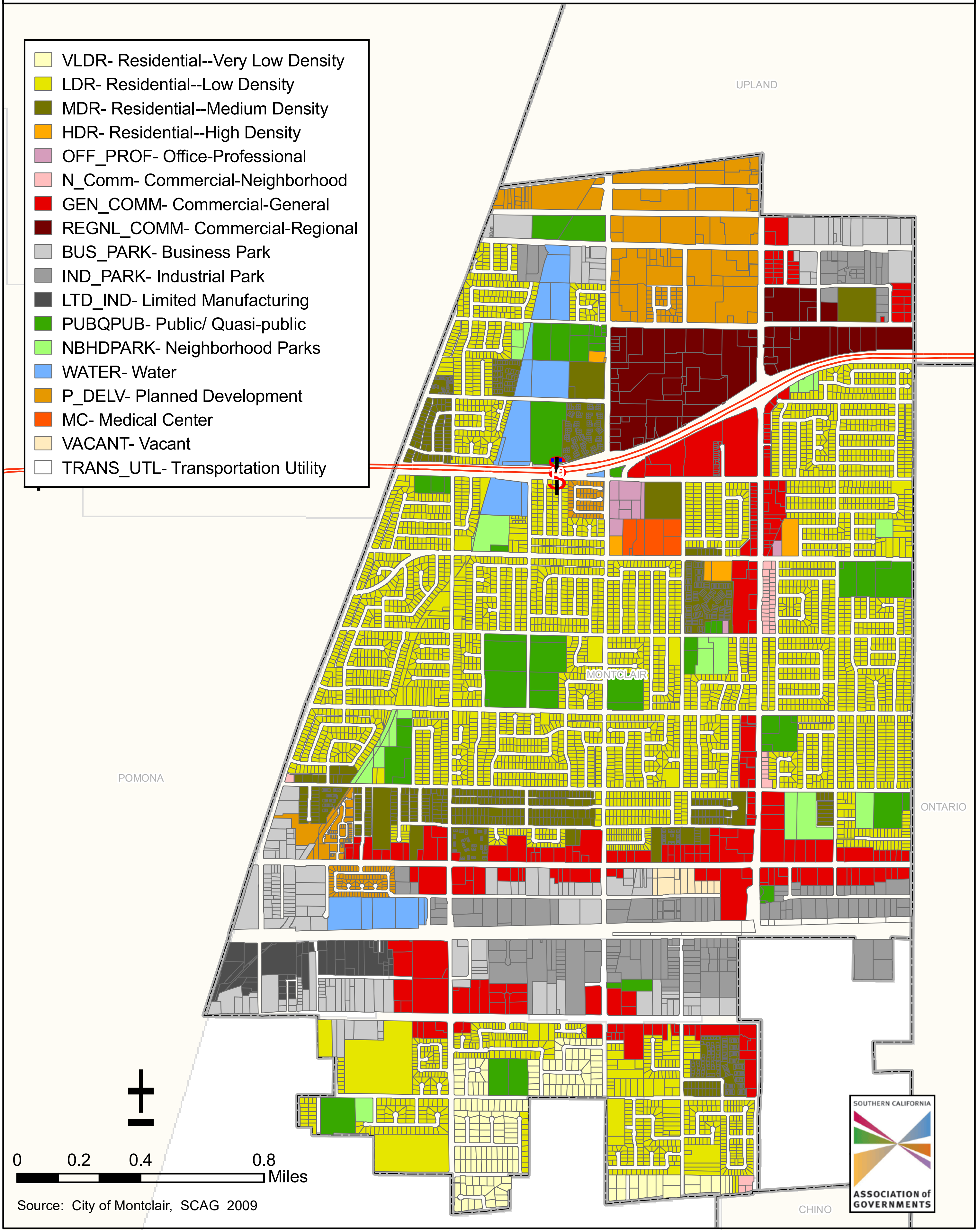


Figure 2-5: 2017 General Plan Land Use Plan

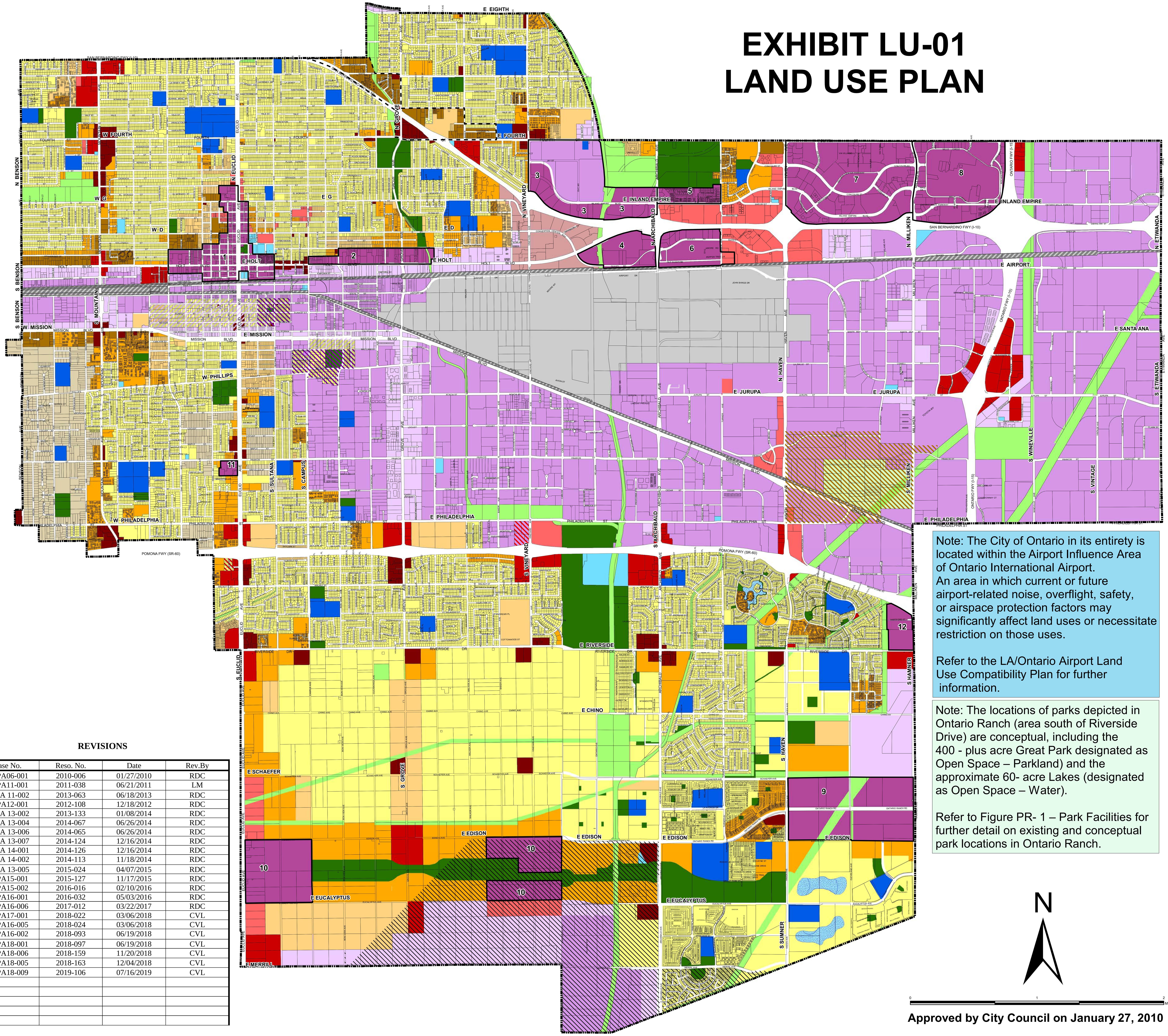
General Plan Land Use in City of Montclair



Source: City of Montclair, SCAG 2009

EXHIBIT LU-01
LAND USE PLAN

THE ONTARIO PLAN
A FRAMEWORK FOR THE FUTURE
www.ontarioplan.org



Note: The City of Ontario in its entirety is located within the Airport Influence Area of Ontario International Airport. An area in which current or future airport-related noise, overflight, safety, or airspace protection factors may significantly affect land uses or necessitate restriction on those uses.

Refer to the LA/Ontario Airport Land Use Compatibility Plan for further information.

Note: The locations of parks depicted in Ontario Ranch (area south of Riverside Drive) are conceptual, including the 400 - plus acre Great Park designated as Open Space – Parkland) and the approximate 60- acre Lakes (designated as Open Space – Water).

Refer to Figure PR- 1 – Park Facilities for further detail on existing and conceptual park locations in Ontario Ranch.

N

Approved by City Council on January 27, 2010

LEGEND

Residential
- Rural (0 - 2 du/ac)
- Low Density (2.1 - 5 du / ac)
- Low-Medium Density (5.1 - 11 du / ac)
- Medium Density (11.1 - 25 du / ac)
- High Density (25.1 - 45 du / ac)

Mixed Use
- Mixed Use
  1. Downtown
  2. East Holt
  3. Meredith
  4. Multimodal Mixed Use
  5. Inland Empire Corridor
  6. Guasti
  7. Ontario Center
  8. Ontario Mills
  9. NMC East
  10. NMC West
  11. Euclid/Francis
  12. 60/Hamner

Retail/Service
- Neighborhood Commercial (0.4 FAR)
- General Commercial (0.4 FAR)
- Office Commercial (0.75 FAR)
- Hospitality (1.0 FAR)

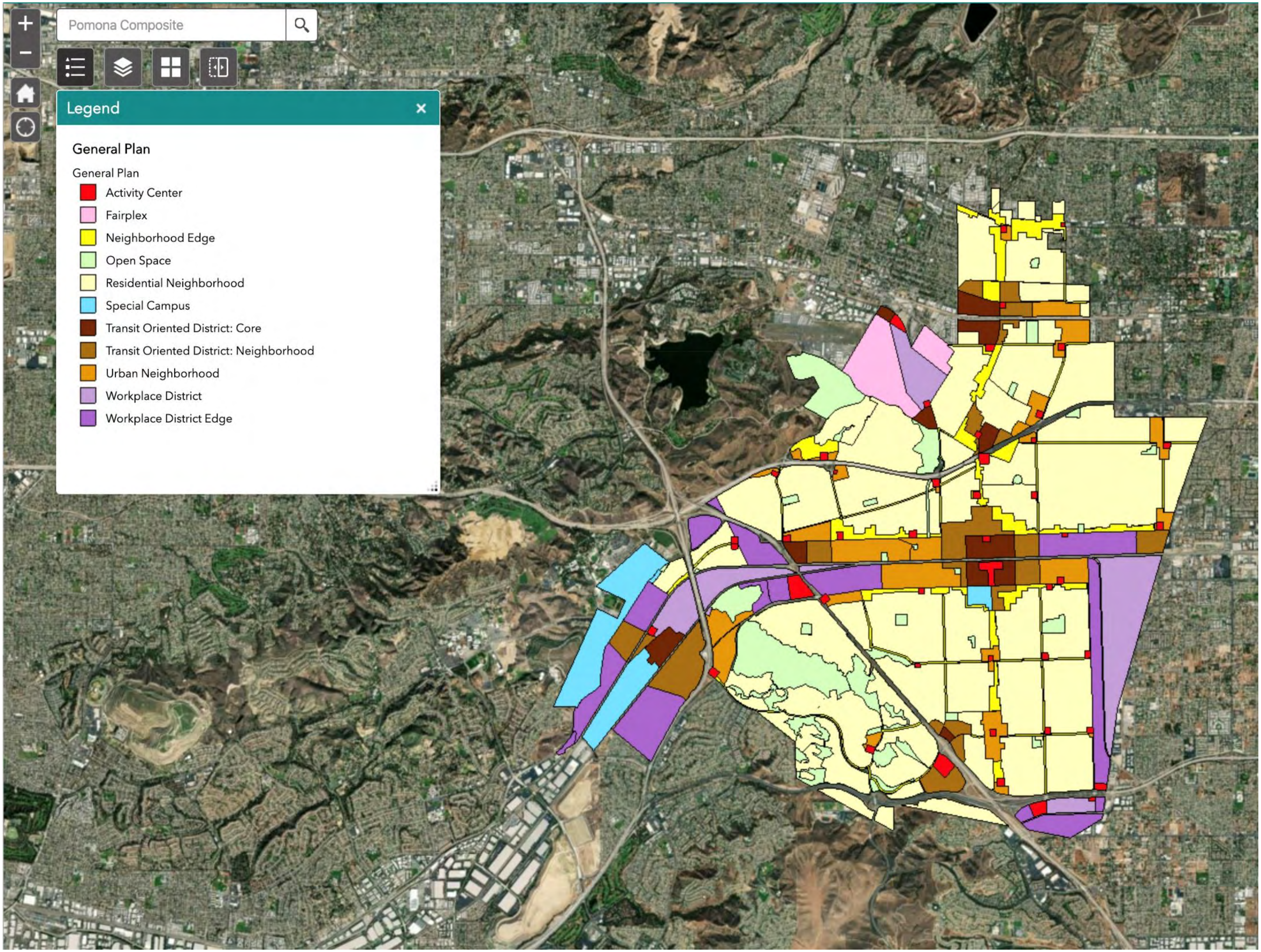
Employment
- Business Park (0.6 FAR)
- Industrial (0.55 FAR)

Other
- Open Space - Non Recreation
- Open Space - Parkland
- Open Space - Water
- Public Facility
- Public School
- Airport
- Rail
- Landfill

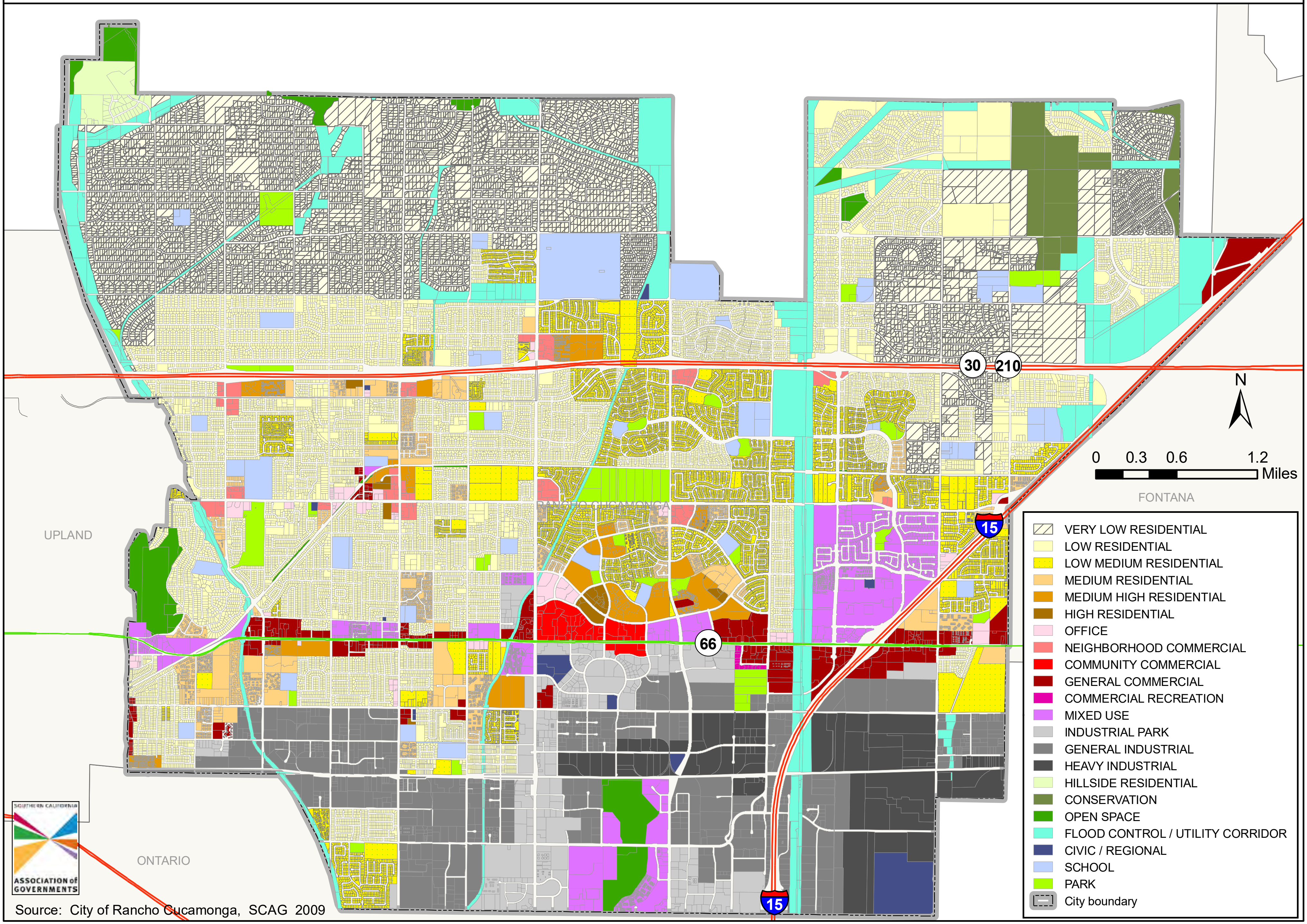
Overlays
- Business Park
- Industrial
- Commercial
- I-10/Grove Interchange Area
- Landfill Impact Area
- Chino Airport Overlay

REVISIONS

Case No.	Reso. No.	Date	Rev.By
PGPA06-001	2010-006	01/27/2010	RDC
PGPA11-001	2011-038	06/21/2011	LM
PGPA 11-002	2013-063	06/18/2013	RDC
PGPA12-001	2012-108	12/18/2012	RDC
PGPA 13-002	2013-133	01/08/2014	RDC
PGPA 13-004	2014-067	06/26/2014	RDC
PGPA 13-006	2014-065	06/26/2014	RDC
PGPA 13-007	2014-124	12/16/2014	RDC
PGPA 14-001	2014-126	12/16/2014	RDC
PGPA 14-002	2014-113	11/18/2014	RDC
PGPA 13-005	2015-024	04/07/2015	RDC
PGPA15-001	2015-127	11/17/2015	RDC
PGPA15-002	2016-016	02/10/2016	RDC
PGPA16-001	2016-032	05/03/2016	RDC
PGPA16-006	2017-012	03/22/2017	RDC
PGPA17-001	2018-022	03/06/2018	CVL
PGPA16-005	2018-024	03/06/2018	CVL
PGPA16-002	2018-093	06/19/2018	CVL
PGPA18-001	2018-097	06/19/2018	CVL
PGPA18-006	2018-159	11/20/2018	CVL
PGPA18-005	2018-163	12/04/2018	CVL
PGPA18-009	2019-106	07/16/2019	CVL

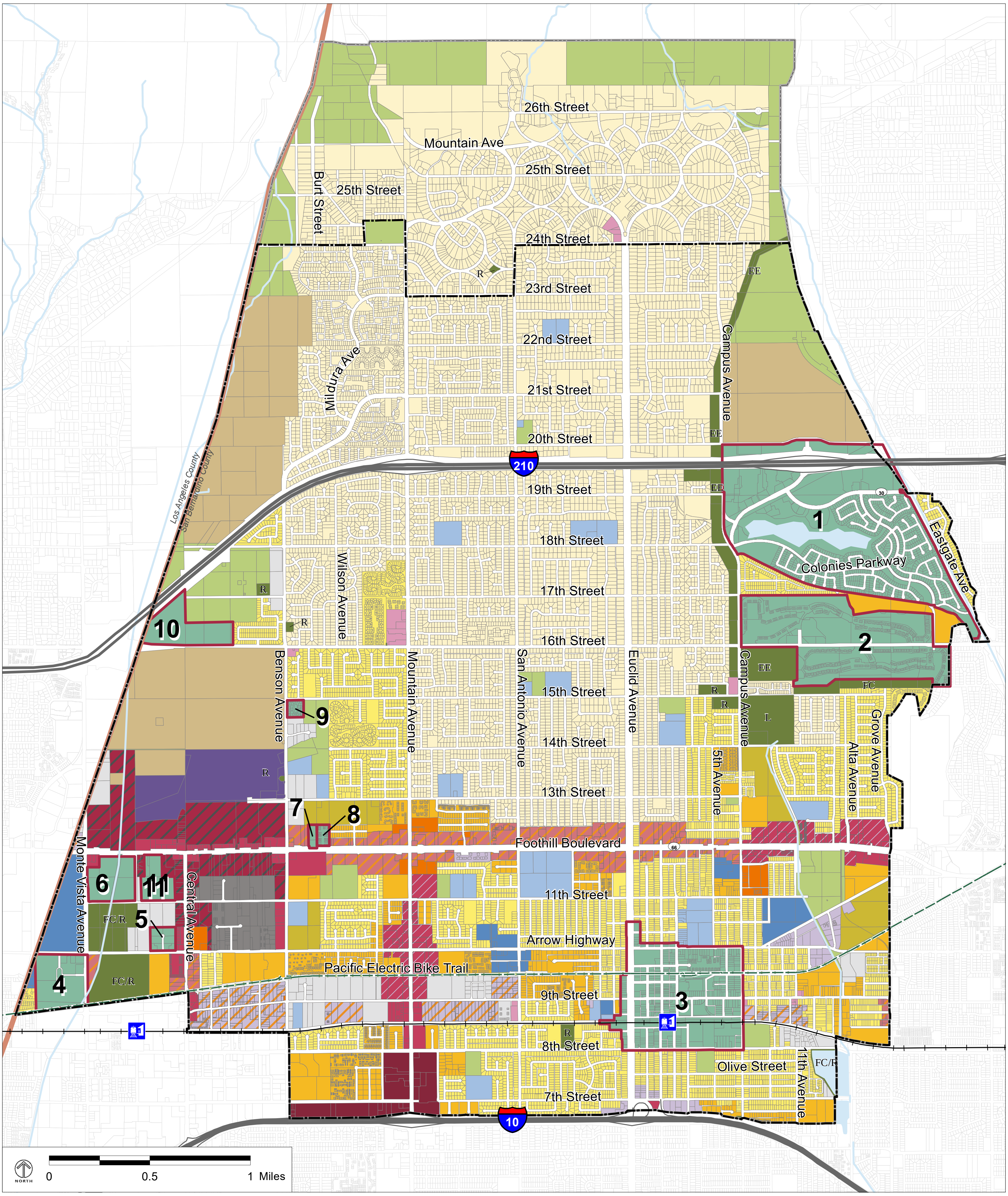

Pomona Composite
Legend
General Plan
General Plan
Activity Center
Fairplex
Neighborhood Edge
Open Space
Residential Neighborhood
Special Campus
Transit Oriented District: Core
Transit Oriented District: Neighborhood
Urban Neighborhood
Workplace District
Workplace District Edge

General Plan Land Use in City of Rancho Cucamonga



Source: City of Rancho Cucamonga, SCAG 2009

Map Date: 9/14/15



SINGLE-FAMILY RESIDENTIAL
- LOW (0-4 du/ac; SFR-L)
- MEDIUM (4-10 du/ac; SFR-M)
- Mobile Home (8-14 du/ac; MH)

MULTI-FAMILY RESIDENTIAL
- LOW (10-20 du/ac; MFR-L)
- MEDIUM (20-30 du/ac; MFR-M)
- HIGH (30-40 du/ac; MFR-H)

COMMERCIAL
- Neighborhood Commercial (NC)
- Highway Commercial (HC)
- Regional Commercial (RC)
- Office/Professional (OP)

MIXED-USE
- Commercial/Residential Mixed-Use (C/R-MU)
- Commercial/Office
- Business/Residential Mixed-Use (B/R-MU)
- Commercial/Industrial Mixed-Use (C/IN-MU)

INDUSTRIAL
- Light Industrial/Business Park (LI-BP)
- Industrial (IN)
- Gravel Mine (GM)

SPECIAL/INSTITUTIONAL
- Cable Airport (CA)
- Institutional (I)
- Civic/School (C-P)
- Park/Open Space (P-OS)
- Public Utilities (PU)

R- Reservoir
L- Landfill
EE- Edison Easement
FC/R- Flood Control/Recharge

SPECIFIC PLAN
- Specific Plan (SP)

1. The Colonies
2. Upland Hills Country Club
3. Historic Downtown Upland
4. College Park
5. College Commerce Center
6. Harvest at Upland
7. Foothill Benson Terrace
8. Foothill Walk
9. Wyeth Cove
10. Park View
11. The Enclave

- Metrolink
- Rail Line
- Pacific Electric Trail
- City Limits
- Sphere of Influence
- County Boundary

FIGURE LU-1
GENERAL PLAN LAND USE

APPENDIX 8.3

NOP COMMENT LETTERS

Chino Basin Watermaster Optimum Basin Management Program U pdate (OBMPU)

Summary

SCH Number	2020020183
Lead Agency	Inland Empire Utilities Agency *(Inland Empire Utility Agency)*
Document Title	Chino Basin Watermaster Optimum Basin Management Program Update (OBMPU)
Document Type	NOP - Notice of Preparation
Received	2/10/2020
Project Applicant	Inland Empire Utilities Agency
Present Land Use	Multiple

Document Description

This project description focuses on the relationship between OBMPU Program Elements and activit ies and facilities proposed by the overall OBMPU programs that may be implemented if the propos ed program is approved by the Chino Basin Watermaster (CBWM or Watermaster). However, becau se the CBWM is not considered a public agency, the Inland Empire Utilities Agency (IEUA), whose se rvice area encompasses most of the Chino Basin, will serve as the Lead Agency for this environmen tal document and compliance with the CEQA. Actual implementation of the OBMPU activities desc ribed herein may be carried out by the CBWM or any of its member agencies/stakeholders in the Ch ino Groundwater Basin (Chino Basin) through the planning period, 2020 through 2050. The descrip tion of the OBMPU's scope in this document is of necessity expansive as it covers the nine (9) Progr am Elements (PEs) that make up the original OBMP, and which were analyzed in a 2000 Program En vironmental Impact Report (2000 PEIR). The OBMPU is intended to address possible program activ ities and projects at a programmatic level over the next 30 years, with some site-specific detail whe re near-term future locations of facilities are known. The CBWM and stakeholders have been meeti ng to review Program Elements and define potential project activities and facilities for about the p ast two years. Since the Inland Empire Utilities Agency (IEUA) has jurisdiction throughout most of t he Chino Basin, it has agreed to serve as the Lead Agency for purposes of complying with the Califo rnia Environ¬mental Quality Act (CEQA). The CBWM and parties/stakeholders of the OBMPU and re gulatory agencies that will function as CEQA Responsible Agencies will have the option of relying u pon this CEQA document for any future actions they take in support of the proposed program or an individual project described in this environmental document.

Contact Information

Sylvie Lee
Inland Empire Utilities Agency
6075 Kimball Avenue
Chino, CA 91708

Phone : (909) 993-1953

slee@ieua.org

Location

Coordinates	34°2'16.9"N 117°34'33.4"W
Counties	Riverside, San Bernardino
Cross Streets	center of Basin @ intersection of Haven Avenue and Mission Blvd.
Total Acres	235 sq mi
State Highways	60
Railways	BNSF / Union Pacific
Airports	Ontario, Chino, Cable
Waterways	Upper Santa Ana River Watershed, Chino Creek

Notice of Completion

Review Period Start	2/10/2020
Review Period End	3/10/2020
Development Type	Water Facilities (Water Master Plan)(multiple Type)
Local Action	Other Action
Reviewing Agencies	California Air Resources Board; California Coachella Valley Mountains Conservancy; California Department of Conservation; California Department of Fish and Wildlife, Inland Deserts Region 6; California Department of Fish and Wildlife, South Coast Region 5; California Department of Forestry and Fire Protection; California Department of Parks and Recreation; California Department of Pesticide Regulation; California Department of Resources Recycling and Recovery; California Department of Transportation, District 7; California Department of Transportation, District 8; California Department of Transportation, Division of Aeronautics; California Department of Water Resources; California Governor's Office of Emergency Services; California Highway Patrol; California Natural Resources Agency; California Public Utilities Commission; California Regional Water Quality Control Board, Colorado River Basin Region 7; California Regional Water Quality Control Board, Lahontan Victorville Region 6; California Regional Water Quality Control Board, Los Angeles Region 4; California Regional Water Quality Control Board, Santa Ana Region 8; California State Lands Commission; Colorado River Board; Department of Corrections; Department of Toxic Substances Control; Office of Historic Preservation; State Water Resources Control Board, Division of Drinking Water; State Water Resources Control Board, Division of Water Quality; State Water Resources Control Board, Division of Water Rights; California Native American Heritage Commission

Attachments

Environmental Document	CBW-271 Document Summary Transmittal form PDF 519 K
	OBMPU Initial Study (February 2020) PDF 59673 K
	OBMPU Notice of Preparation (February 2020) PDF 72 K
NOC	Notice of Completion (NOP) PDF 151 K
State Comments	2020020183_NOP Chino Basin Watermaster Optimum Basin Management Program Update (OBMPU) Project 2-11-2020 PDF 242 K

SINCE 1933

ORANGE COUNTY WATER DISTRICT

ORANGE COUNTY'S GROUNDWATER AUTHORITY

March 6, 2020

Ms. Sylvie Lee, P.E.
Inland Empire Utilities Agency
6075 Kimball Avenue
Chino CA, 91708

Dear Ms. Lee:

The Orange County Water District (OCWD) appreciates the opportunity to comment on the Notice of Preparation (NOP) of an Environmental Impact Report (SCH 2020020183) for projects proposed in the Chino Basin Optimum Basin Management Program Update (OBMPU).

OCWD is a special district formed in 1933 by an act of the California Legislature. The District manages the groundwater basin that underlies north and central Orange County. Water produced from the basin is the primary water supply for approximately 2.4 million resident living within the District's boundaries. OCWD also owns more than 2,000 acres of land in the Prado Basin and is keenly interested in projects that may affect the Prado Basin.

By virtue of its statutory authority and its extensive activities in Prado Basin, including water conservation/stormwater capture and operation of constructed wetlands to enhance Santa Ana River water quality, OCWD is particularly sensitive to environmental values and natural resources in Prado Basin.

Prado Basin contains extensive areas that have been identified as Wetland Waters of the United States and jurisdictional Waters of the State. Additionally, the CA Department of Water Resources (DWR) has provided mapping tools in their Natural Communities Commonly Associated with Groundwater Dataset that show the distribution of riparian vegetation and wetlands in Prado Basin. The distribution of riparian vegetation and wetlands in Prado Basin and the occurrence of shallow groundwater and groundwater discharge to the ground surface (commonly referred to as 'rising groundwater' or 'groundwater seepage') in Prado Basin are typical of Groundwater Dependent Ecosystem (GDE). DWR defines a GDE as an "ecological community or species that is depend on groundwater emerging from aquifers or on groundwater occurring near the ground surface". Figures 1 and 2 below show mapping of vegetation and wetlands in Prado Basin commonly associated with GDE. Figure 1 and 2 were generated from a DWR mapping tool available online at https://gis.water.ca.gov/app/NCDatasetViewer/. The mapping in Figure 2 uses data from the National Wetlands Inventory Version 2 published by the United States Fish and Wildlife Service (https://www.fws.gov/wetlands/).

PO Box 8300
Fountain Valley, CA 92728-8300
18700 Ward Street
Fountain Valley, CA 92708
(714) 378-3200
(714) 378-3373 fax
www.ocwd.com

Prado Basin contains the single largest forested wetland in coastal Southern California and supports an abundance and diversity of wildlife, including many listed and sensitive species. The Environmental Impact Report (EIR) for the OBMPU should evaluate potential effects the proposed projects may have on GDE in Prado Basin. The EIR should assess how proposed OBMPU projects change or affect surface water flow rates in Chino Creek, Mill Creek, and the Santa Ana River and how changes in surface water flow rates in these water bodies affect the levels and availability of shallow groundwater in and around Prado Basin and the effects these changes will have on sensitive riparian vegetation and riparian habitats. The EIR should assess how proposed changes in groundwater pumping, groundwater storage levels, or groundwater overdraft affect the levels and availability of shallow groundwater in and around Prado Basin and the effects these changes will have on sensitive riparian vegetation and riparian habitats in Prado Basin. The EIR should evaluate potential impacts of increased fire risk, riparian habitat loss and riparian habitat conversion to non-native plant species that may occur due to the projects proposed in the OBMPU. Riparian habitat is critical for the endangered Least Bell Vireo as a seasonal foraging and breading ground.

The Upper Santa Ana River Sustainable Resource Alliance circulated a NOP for the EIR for the Upper Santa Ana River Habitat Conservation Plan (HCP). According to their website, http://uppersarhcp.com/, the purpose of the Upper Santa Ana River Sustainable Resources Alliance is to enable the water resource agencies to continue to provide and maintain a secure source of water for the residents and businesses in the watershed, and to conserve and maintain natural rivers and streams that provide habitat for a diversity of unique and rare species in the watershed. Implementation of projects contained in this HCP will reduce flow in the Santa Ana River. As the project description contained in the HCP identifies a number of reasonably foreseeable future projects that would affect Santa Ana River flows reaching Prado Basin, the OMBPU EIR should provide a quantitative analysis regarding how OBMPU projects would cumulatively impact Prado Basin habitat and groundwater levels in relation to those projects identified in the HCP.

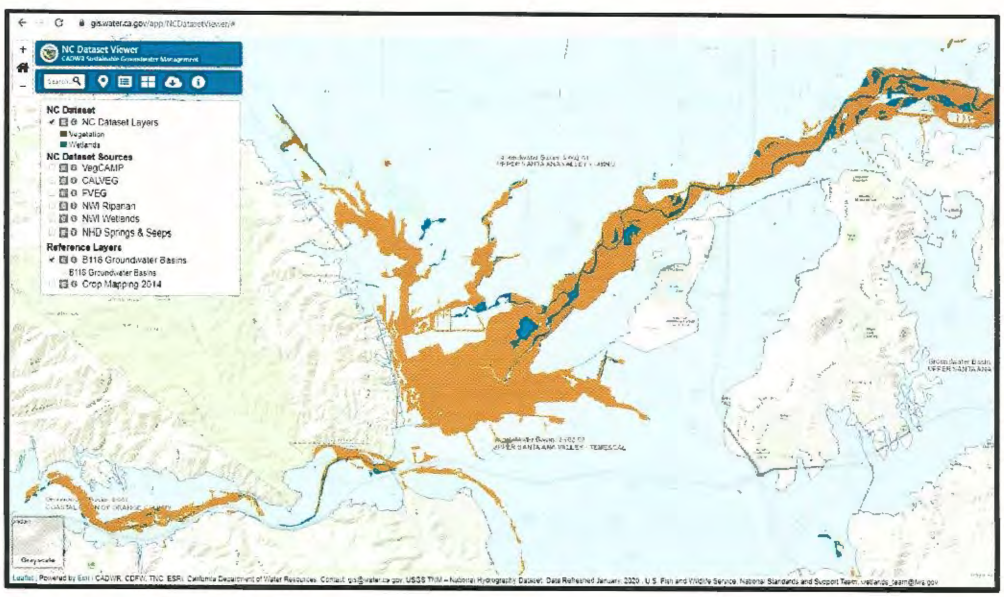


Figure 1 – DWR Mapping tool Generated Map depicting Prado Basin Vegetation and Wetlands

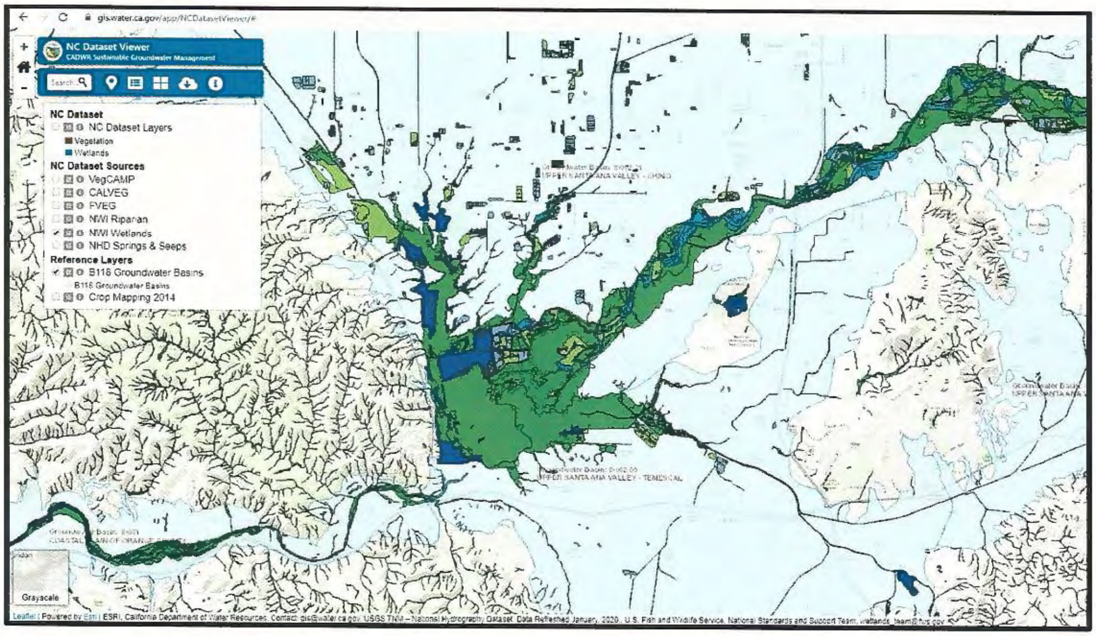


Figure 2 - DWR Mapping tool Generated Map depicting Wetlands Identified by National Wetlands Inventory

If you have any questions, please contact Kevin O'Toole at (714) 378-8248 or kotoole@ocwd.com.

Sincerely,

Michael R. Markus, P.E., D.WRE, BCEE, F.ASCE
General Manager

FACILITY PLANNING, CONSTRUCTION AND MANAGEMENT
P.O. Box 942883
Sacramento, CA 94283-0001

March 10, 2020

Ms. Sylvie Lee, P.E.
Inland Empire Utilities Agency
6075 Kimball Avenue
Chino, CA 91708

Dear Ms. Lee:

The Inland Empire Utilities Agency (IEUA), as Lead Agency, has prepared a Notice of Preparation to notify agencies and interested parties that 1) the IEUA has independently prepared an Initial Study and determined potentially significant impacts are associated with the implementation of projects identified in the proposed Optimum Basin Management Program Update (OBMPU); and 2) an Environmental Impact Report (EIR) is required. The OBMPU continues the Optimum Basin Management Program's nine Program Elements (described in an Initial Study), and describes facility improvements needed to meet the OBMPU's long-term planning objectives over a 30-year planning horizon.

The California Department of Corrections and Rehabilitation (CDCR) operates the California Institution for Men and the California Institution for Women within the IEUA service area and considers local and regional environmental issues a priority. CDCR looks forward to the opportunity to comment on the OBMPU Draft EIR and continued collaboration with the IEUA, the City of Chino, San Bernardino County, and the Chino Basin Watermaster on issues that will be reviewed in the OBMPU Draft EIR.

Please do not hesitate to contact Peter Connelly, Senior Environmental Planner, via email at Peter.Connelly@cdcr.ca.gov, or by phone at (916) 255-3010, with any questions.

Sincerely,

Dean Lee Borg

DEAN L. BORG
Director
Facility Planning, Construction and Management

cc: Peter Connelly

DEPARTMENT OF WATER RESOURCES
1416 NINTH STREET, P.O. BOX 942836
SACRAMENTO, CA 94236-0001
(916) 653-5791

MAR 0 3 2020

Ms. Sylvie Lee
Inland Empire Utilities Agency
6075 Kimball Avenue
Chino, California 91708

Notice of Completion and Environmental Document Transmittal for the Chino Basin Watermaster Optimum Basin Management Program Update SCH2020020183
San Bernardino County

Dear Ms. Lee:

The Division of Safety of Dams (DSOD) has reviewed the Initial Study for the Chino Basin Watermaster Optimum Basin Management Program Update (Project) which describes constructing various new surface water storage basins (listed on Pages 20 and 21 of the Initial Study) and improvements to the Upland, College Heights, Brooks, Eight and Seventh Street, Etiwanda Conservation, Lower Day, Victoria, San Sevaine, Turner, Hickory, Etiwanda Percolation, Jurupa, and Wineville Basins, and the construction of the RP-3 Basins (Page 16).

Insufficient information is provided regarding the basins in the Project description to make an accurate jurisdictional determination with regards to the described work and it is unclear whether part or all the work will be subject to State jurisdiction for dam safety; therefore, the Inland Empire Utilities Agency needs to submit preliminary plans for each of the proposed basins so that DSOD can make a jurisdictional determination.

As defined in Sections 6002 and 6003, Division 3, of the California Water Code, dams 25 feet or higher with a storage capacity of more than 15 acre-feet, and dams higher than 6 feet with a storage capacity of 50 acre-feet or more are subject to State jurisdiction. The dam height is the vertical distance measured from the maximum possible water storage level to the downstream toe of the barrier.

If any of the dams are subject to State jurisdiction, a construction application, together with plans, specifications, and the appropriate filing fee must be filed with DSOD for this project. All dam safety related issues must be resolved prior to approval of the application, and the work must be performed under the direction of a Civil Engineer registered in California. Erik Malvick, our Design Engineering Branch Chief, is responsible for the application process and can be reached at (916) 565-7840.

If you have any questions or need additional information, you may contact Area Engineer Bill Vogler at (916) 565-7828 or me at (916) 565-7827.

Sincerely,

Rick G. Draeger, Regional Engineer
Southern Region
Field Engineering Branch
Division of Safety of Dams

cc: Governor's Office of Planning and Research
State Clearinghouse
state.clearinghouse@opr.ca.gov

STATE OF CALIFORNIA
California Natural Resources Agency
DEPARTMENT OF WATER RESOURCES
P.O. Box 942836
SACRAMENTO, CA 94236-0001

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RECEIVED
MAR 09 2020
By

MS SYLVIE LEE
INLAND EMPIRE UTILITIES AGENCY
6075 KIMBALL AVENUE
CHINO CA 91708

917083174 R053

Subject: RE: [OBMPU] Notice of Preparation of an Environmental Impact Report
Date: Monday, March 23, 2020 3:37:28 PM

From: Katie Gienger <KGienger@ontarioca.gov>
Sent: Thursday, March 5, 2020 4:10 PM
To: Sylvie Lee <slee@ieua.org>; etellezfoster@cbwm.org
Subject: FW: [OBMPU] Notice of Preparation of an Environmental Impact Report

Good Afternoon Sylvie and Edgar,

Will the EIR include a discussion on the Santa Ana River? It wasn't clear to me in the NOP/IS how the environmental review would evaluate potential impacts to the Santa Ana River. Several of the projects, from increased use of recycled water to the Chino Basin Program, result in either reduced flows to the river or a change in the source water discharged to the river. The flow rate may change, or even if not, the location of discharge and water quality may change. This warrants review in the OBMP EIR.

In order to ensure that the CEQA process goes smoothly and accurately reflects the intentions of the Chino Basin stakeholders, I request that the stakeholders be given an opportunity to review a draft of the EIR prior to it being released for public comment.

I look forward to working with you to ensure a complete environmental review.

Sincerely,

Katie Gienger, P.E.
Water Resources Manager

1425 S. Bon View Avenue
Ontario, CA 91761-4406
Phone: (909) 395-2694
E-mail: kgienger@ontarioca.gov

From: Janine Wilson
Sent: Tuesday, February 11, 2020 1:27 PM
Subject: [OBMPU] Notice of Preparation of an Environmental Impact Report

Dear Stakeholders,

IEUA, in cooperation with the Chino Basin Watermaster, has published a Notice of Preparation (NOP) of an Environmental Impact Report (EIR) for the Chino Basin Optimum Basin Management Program Update (OBMPU) that includes an Initial Study, which incorporates the OBMPU project description and establishes the scope of the EIR. If you are interested in reviewing a copy of this document, it can be accessed at www.ieua.org/obmpu-ceqa [ieua.org]. Comments are due by March 10, 2020.

A Public Scoping Meeting will be held at IEUA's Boardroom, 6075 Kimball Ave, Chino, CA 91708 [bing.com], on February 27th, 2020 at 6:00pm.

If you have any questions or comments please contact Sylvie Lee (slee@ieua.org) or Edgar Tellez Foster (etellezfoster@cbwm.org)

Thank you,

Janine Wilson, CAP, OM, TA
Senior Accountant
Chino Basin Watermaster
9641 San Bernardino Road
Rancho Cucamonga, CA 91730

Office: 909.484.3888
Fax: 909.484.3890
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