

# Chino Basin Drought Contingency Plan: Drought Response Plan



## WaterSMART: Drought Contingency Planning Grants Funding Opportunity R16-FOA-DO-005

Inland Empire Utilities Agency

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## WaterSMART: Drought Contingency Planning Grants for Fiscal Year 2016

### Executive Summary

**Date:** April 11, 2016

**Applicant Name:** Inland Empire Utilities Agency

**City, County and State:** Chino, San Bernardino County, California

**Project Title:** *Chino Basin Drought Contingency Plan: Drought Response Plan*

#### *A one paragraph project summary*

In 2009, The Inland Empire Utilities Agency (IEUA) developed a Drought Plan for the purpose of implementing activities and strategies that would address all aspects of drought planning such as actions to avoid rationing, drought response stages, allocation, methodology, pricing, communications and public outreach. As the regional wholesale water supplier in the western San Bernardino County in Southern California, IEUA is responsible for purchasing and providing imported water to the region. IEUA is a member of the Metropolitan Water District of Southern California (MWD) and relies on MWD to establish guidance for allocating limited water supplies to its member agencies through its Water Supply Allocation Plan (WSAP) should it be required. IEUA's first Drought Plan was developed for the sole purpose of implementing MWD's WSAP within IEUA's service area in a manner that is fair and equitable to IEUA's retail Member Agencies. With continual regional water supply challenges and reliability, IEUA is seeking to update and develop a more robust Drought Response Plan (DRP) that will incorporate several recently completed initiatives and strategies that are focused on a holistic approach to improving near- and long-term water resources management for the region rather than relying solely on imported water supply as written in IEUA's original Drought Plan. The DRP will be updated and developed based on the foundation of other drought related actions that have been developed through planning efforts such as the recently completed Integrated Water Resources Plan (IRP), the Water Use Efficiency Business Plan (WUEP), the Recharge Master Plan Update (RMPU), and the Urban Water Management Plan (UWMP). IEUA's DRP will expand and enhance the previous drought plan to take into consideration key factors such as impact on retail consumers and economy, increased reclamation supplies, conservation, climate change, population and economic growth, investment in local resources, change in local supply, and infrastructure investment in order to equitably allocate regional water resources under restricted water supply conditions.

#### *State the length of time and estimated completion date for the Drought Contingency Plan*

DRP is scheduled for completion in approximately two years on June 21, 2018.

#### *Indicate whether or not a Reclamation project, facility, or activity is located within the geographic area to be addressed in the proposed Drought Contingency Plan*

DRP covers the entire Inland Empire Utilities Agency service area in the Chino Basin, which spans 242 square miles in San Bernardino County. Within this region there have been various Bureau of Reclamation-funded plans and projects that have been completed (see Table 1: Past Working Relationships with Reclamation).

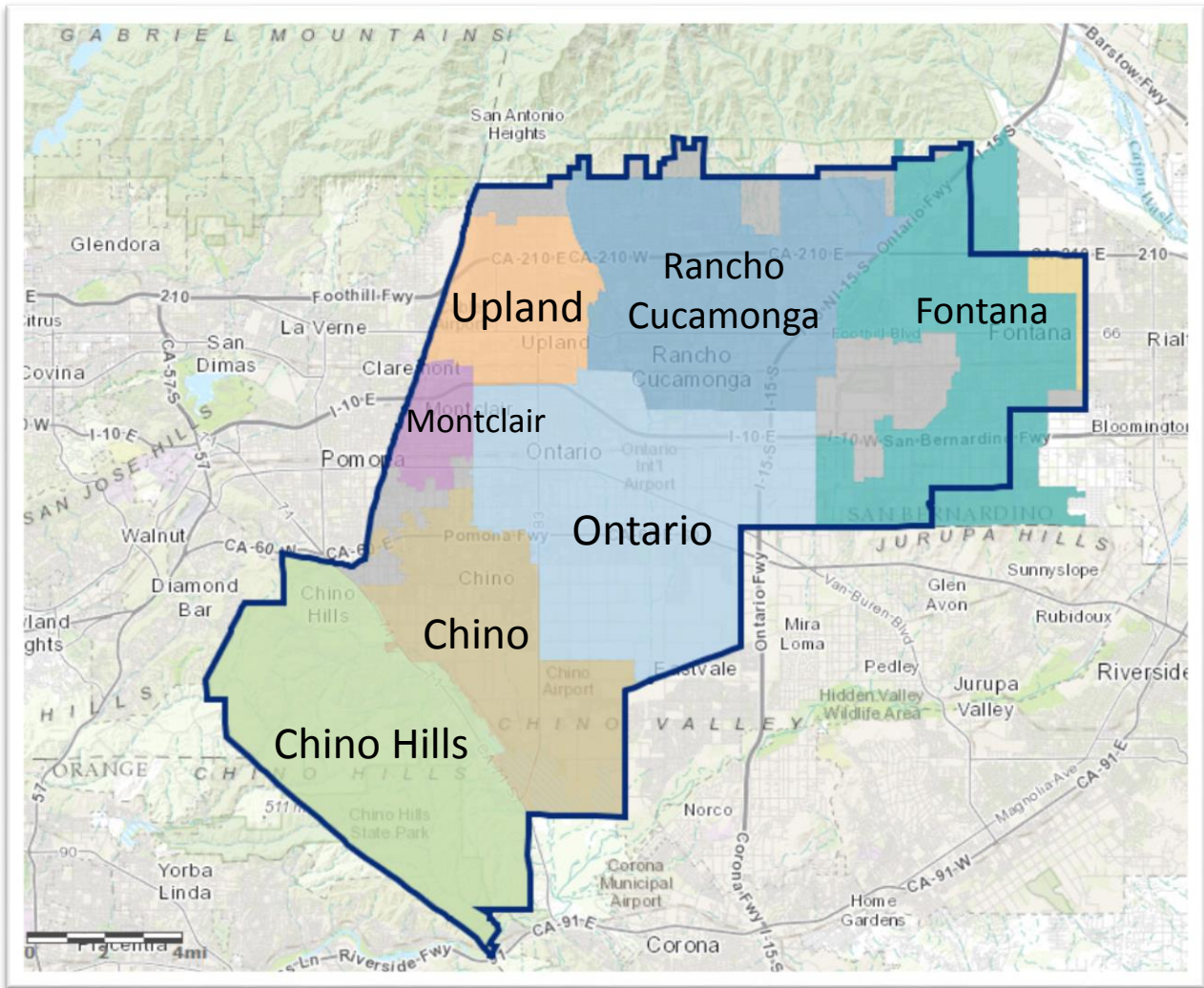


## Background Data

### Service Area Map

The Inland Empire includes the cities of Upland, Rancho Cucamonga, Fontana, Montclair, Ontario, Chino, and Chino Hills as shown in Figure 1.

**Figure 1: DRP Regional Planning Area Boundary**



*Provide a general description of the area to be addressed in the Drought Contingency Plan and description of sources of water supply.*

The DRP will address the region within IEUA's service area, as outlined in Figure 1 above. The region's water supplies rely on the following: Chino Basin Groundwater, storm water, recycled water, Chino Basin Desalter, local surface water, non-Chino basin groundwater, imported water, and conservation. The service area relies on this water for the livelihood of communities, businesses, industries, agriculture, habitat, and other customers.

Approximately 90% of the region's water demands have come from urban municipal and industrial (M&I) users with the remaining 10% coming from agricultural users. In addition to urban

demands, regional water demands also include environmental discharge obligations to the Santa Ana River and contractual water commitments. The total regional urban demand is approximately 200,000 AFY. Additional water demands include regional environmental and/or contractual stream flow obligations, such as the Santa Ana River Discharge Joint Obligation, Management Zone 1 Supplemental Recharge, and the Chino Desalter Replenishment.

- Santa Ana River Discharge Obligation is a regional environmental obligation that requires annual water discharges to the Santa Ana River near Prado basin. For the purposes of the DRP, 17,000 AFY is used as the Agency’s requirement to fulfill the obligation through 2040. The region currently meets this obligation by discharging treated wastewater to the Cucamonga and Chino Creeks.
- Management Zone 1 Supplemental Recharge pursuant to the PEACE II Agreement, Section 8.4. For the purposes of the DRP, 6,500 acre-foot per year will be used to fulfill the supplemental groundwater recharge obligation within Management Zone 1. The obligation is met by Chino Basin Watermaster through recycled water recharge and/or imported water recharge.
- Chino Desalter Replenishment pursuant to the PEACE II Agreement, Section 6.2. For the purposes of the DRP, the safe yield reset implementation plan will be used for the groundwater replenishment obligation.

Regional water demands are the sum of the urban M&I demand forecast and the total additional water needs forecast. Current regional demand is estimated at 225,000 AFY of urban M&I demand, and 25,000 AFY of additional water needs, for a combined demand of 250,000 AFY. By 2040 it is projected that approximately 45,000 AFY of additional supply will be needed to accommodate regional growth and other environmental and contractual stream flow obligations.

### Past Working Relationships with Reclamation

**Table 1: Past Working Relationships with Reclamation**

Project Name	Amount	Contract Number	Award Date	Contract Termination
CEQA for Regional Water Recycling Project	\$22,608	01-FC-35-0020	Prior to 2001	11/20/2002
Chino Basin Comprehensive Water Efficiency Landscape Planning Process	\$125,000	00-FC-20-0208	6/26/2000	3/31/2003
Regional Recycled Water Program Feasibility Study	\$980,000	06-FC-35-0189	6/27/2006	3/31/2008
Chino Basin Water Efficient Irrigation Demonstration	\$50,000	05-FG-35-0170	9/12/2005	1/31/2010
Regional Recycled Water Program – NE Area	\$5,938,454	R10AC35R16	12/22/2009	4/15/2011

Project Name	Amount	Contract Number	Award Date	Contract Termination
California Friendly Water Wise Landscape Program	\$30,000	R09AP35261	8/28/2009	5/31/2011
Regional Recycled Water Program – NW Area	\$7,910,000	R10AC35R17	12/22/2009	3/21/2012
Turner Basin/Guasti Multi Use Beneficial Project	\$406,712	R11AP35315	9/22/2011	9/30/2013
Regional Residential Landscape Surveys and Retrofit Programs	\$199,000	R12AP35353	9/7/2012	12/31/2014
Construct Regional Recycled Water Program	\$4,940,000	08-FC-35-0237-1	3/20/2009	6/30/2015
1010 Zone Pump Station and New Product Water Pipelines	\$3,970,000	R12AC35339	9/24/2012	11/30/2016
Brine Concentrate Reduction Facility	\$4,940,000.00	R15AC00059	9/14/2015	12/30/2016
Groundwater Supply Wells and Raw Water Pipelines	\$3,000,000	R14AC00049	9/17/2014	5/31/2017
Groundwater Recharge Yield Enhancement Conjunctive Use Project for Storm water Capture	\$750,000.00	R15AP00151	9/4/2015	5/31/2017
<b>Total</b>	<b>\$38,201,774</b>			

### Technical Proposal Description of the Drought Contingency Plan

This proposal addresses the DRP, which will **update the existing Drought Plan**. With continual regional water supply challenges and reliability, IEUA is seeking to update and develop a comprehensive DRP to incorporate various planning documents that are focused on a regional approach to improving water resources management for near- and long-term drought conditions. The DRP will include a comprehensive approach to a collaborative regional drought response. IEUA will also integrate other actions that have been developed through planning efforts such as climate projections, water supply and demand forecasting, modeling, and strategy development.

IEUA also seeks to improve the 2009 Drought Plan through the enhancement of regional outreach and an improved communication strategy. Over the last year, IEUA and its Member Agencies re-established a Task Force and have worked together on a coordinated regional strategy, which includes the development of a unified message. The Task Force developed an ongoing, coordinated and regional public outreach program. A heightened outreach campaign strategy was created that

carried the message of conservation and incorporated actions such as vehicle magnets, email blasts, website communication, social media and marketing materials.

**Drought Monitoring:** The DRP will comply with drought monitoring through monitoring streamflow levels, groundwater recharge, imported water, precipitation, temperature, and regional water usage. Data available from the latest climate models will provide key information to understand the wide range of possible future climate conditions. The data will be tracked to define stages of the drought for appropriate mitigation plan or response actions. The different stages of the drought are communicated between the Metropolitan Water District and IEUA. MWD has a detailed water surplus and drought management plan to coordinate and provide fundamental policies for guiding surplus and shortage management and establish a basis for dealing with shortages in an equitable and efficient manner. MWD's plan is a comprehensive guiding document for the various agencies that it serves, including IEUA and its Member Agencies.

Consistent with current IEUA practice and the requirements of MWD's WSAP and associated programs, imported water purchases and regional water use will be summarized and reported on a monthly basis. This information will help IEUA and its Member Agencies monitor and evaluate water use demands, project annual usage and avoid any over usage that would result in MWD penalties. IEUA relies on the cooperation of Member Agencies to collect monthly water demand and supply data in a timely manner. The data is then organized by IEUA for review, analysis, and dissemination to the regional Member Agencies.

**Vulnerability Assessment:** A critical factor in conducting the vulnerability assessment for a drought response plan is understanding the potential for and characteristics of future drought conditions. The assessment will utilize drought risks and potential impacts to develop mitigation plan and response actions, and a list of projects that can further mitigate these critical resources to lessen the impacts or likelihood of future drought conditions.

To understand and forecast future droughts, modelling tools have and will continue to review previous quantitative climatic trends as well as estimate future climate conditions based on a broader set of possibilities. To evaluate the risks and impacts of the drought, and to mitigate catastrophic regional water conditions, the assessment will include the listing of critical infrastructures and systems that must be maintained in operational conditions, as well plotting them on a risk matrix system documenting the likelihood versus the potential consequence of a catastrophic event. The infrastructures and systems will be classified into a version of the following risk matrix.

**Figure 2: Sample Risk Matrix**

		Consequence					
		How severe could the outcomes be if the risk event occurred? →					
		1	2	3	4	5	
		Insignificant	Minor	Significant	Major	Severe	
Likelihood	↑ What's the chance the risk occurring?	5 Almost Certain	5 Medium	10 High	15 Very high	20 Extreme	25 Extreme
	4 Likely	4 Medium	8 Medium	12 High	16 Very high	20 Extreme	
	3 Moderate	3 Low	6 Medium	9 Medium	12 High	15 Very high	
	2 Unlikely	2 Very low	4 Low	6 Medium	8 Medium	10 High	
	1 Rare	1 Very low	2 Very low	3 Low	4 Medium	5 Medium	

The first step will consist of identifying drought-related risks, which may include water supply sources, water quantity, water quality, infrastructure, etc. The next step will evaluate the information for trends in precipitation, temperature, streamflows, and hydrology for the Inland Empire region of the Chino Basin. The evaluation will include reviewing and highlighting drought characteristics in the projections to identify typical or expected extreme periods, duration and frequency.

To accurately categorize the infrastructures and systems (resources), the representatives of the agencies within the Task Force will lead the identification and analysis effort for their respective agency. Each representative will lead the coordination within their agency to document the critical resources, describe the associated dependence, estimate the potential likelihood of a catastrophic event, estimate the maximum duration that it can remain inoperable, and describe the response and actions needed to reinstate the resource.

The assessment will be based on a range of future conditions, including supply sources, demand forecasts, climate change, and likelihood. Once the agencies document their initial vulnerability assessment, the Task Force will reconvene in workshops to review the individual initial assessments to expand and apply the assessment to the region. The Task Force will take the prioritized initial assessments and consolidate them into a regional initial vulnerability assessment. Only those rated as Extreme, Very High, and High will be further considered for mitigation and response.

The Task Force will draft the consolidated vulnerability assessment through workshops. The result will be a Task Force-approved regional vulnerability assessment that will be taken to the Water Managers Task Force for review and input. Comments from the Water Managers will be reviewed and incorporated, and the updated assessment will be reviewed and approved by the Water



Managers. This assessment will serve as a factor to document and prioritize the expected drought response, capital improvement projects, and will contribute to a more robust and effective drought-resilient DRP.

**Mitigation Actions:** The DRP will identify, evaluate, and prioritize mitigation actions and activities to build long-term resiliency to the drought. The evaluation will identify mitigation actions, including trigger, description, scope, location, supply type, expected result, cost, priority, and responsible agency. The evaluation will assist in forming a plan to regionally provide a mitigation action strategy to reduce or eliminate the impacts of a drought. Additionally, identifying and planning for capital improvements projects will serve as a means to further mitigate impacts of the extended drought and future climate change conditions. These actions are outside of the regular water management activities, and are intended to decrease regional vulnerabilities and reduce the need for emergency response actions by the Member Agencies.

**Response Actions:** The drought response stages are consistent with MWD's adopted Water Supply Allocation Plan (WSAP). MWD imports about half of the six-county region's overall water supply from the Colorado River and Northern California and holds water in storage in case of drought. When MWD must limit supplies during an extraordinary drought cycle, local response actions are mandatory. The primary principle is its tiered pricing levels to alleviate disparate impacts at the retail level for MWD's member public agencies across the district's service area. The plan's formula includes mechanisms to help ensure that no Member Agencies are disproportionately impacted. MWD, IEUA and Member Agencies coordinate closely on the response needed to address MWD's requirements. MWD established various levels of water shortage with corresponding percentage reductions in imported water allocations. The allocation methodology was developed to be equitable, easy to administer, contain financial and pricing signals to ensure Member Agencies and the public are informed and understand the need to conserve. The response actions are activities that will be implemented quickly during a drought, with a focus on immediate water conservation throughout the region. The triggers for the various levels of response are administered by MWD, through IEUA, and to the Member Agencies.

In order to protect the economic health of the entire region, it is important that the allocation methodology avoid large, uneven retail impacts across the region. A Member Agency that has developed local projects and instituted conservation measures should not be penalized in the computation of the shortage allocation. To help balance the financial costs and risks associated with the development of local resources, the shortage allocation methodology should provide an incentive to those Member Agencies that can develop additional local supplies.

Through the mitigation efforts, emergency drought response actions are anticipated to be few. However, during the mitigation discussions and efforts, the agencies will identify, evaluate, and prioritize response actions. Potential drought scenarios that could be posed by MWD, the State, and other organizations will be documented. The response actions to these potential drought scenarios will be rated according to expected effectiveness, timeliness of implementation, and local and regional impacts and benefits.

**Operational and Administrative Framework:** A regional operational and administrative strategy will be included as a part of the DRP. IEUA and the Member Agencies will collaboratively develop a regional strategy, including communication, designated responsibilities, level of actions,

reporting, and updating the plan. The cohesive strategy will strengthen communication with the public about the serious nature of the drought and the actions that are needed to manage water demands and ensure a safe and reliable water supply during drought conditions.

The strategy will include details on the roles, responsibilities and procedures necessary to:

- Conduct drought monitoring
- Implement mitigation actions and capital improvement programs (long-term)
- Initiate regional response actions (short-term)
- Updating the DRP

The development of an ongoing, coordinated and regional public outreach program has been initiated and provides a clear and consistent message to the public regarding support Member Agencies communication efforts that address specific retail level allocations. IEUA and its Member Agencies have established a committee to develop and coordinate the information to be provided to the media, public officials and the general public. The communication message will include clear solutions – easy and inexpensive ways to conserve. It is essential that local print and news media are fully committed to covering the situation. The drought communication strategy will include the following:

- Regular meetings with Member Agencies and conservation partners to develop and coordinate a regional conservation message.
- Regular briefings to the Inland Valley Daily Bulletin and other editorial boards.
- Joint press conferences with Member Agencies, Three Valley’s MWD, Western MWD, and MWD to provide updates on the water supply status and actions that need to be taken to address the drought.
- A speaker’s bureau which will provide timely presentations and updates to City Councils, Chambers of Commerce, and Service Organizations.
- Inland Valley Daily Bulletin feature advertising on conservation and monthly conservation tips and rebates.
- An advertising campaign using donated billboard space and Public Service Announcements.
- Distribution of information to the public about the drought and conservation tips and rebates through school programs, libraries and senior organizations.

**Plan Update Process:** The DRP will be updated in three Parts: 1) Collaborative Review of Regional and Local Plans, 2) Drought Impact Analysis, and 3) Drought Response Plan Development.

### **Part 1: Collaborative Review of Regional and Local Plans**

The plan update process will be initiated with the gathering and review of regional and local key planning documents, including the latest drought-related allocation and response plans from agencies such as the Metropolitan Water District. Local drought plans will be gathered from Member Agencies. The region’s plans will be reviewed through workshops to ensure collaboration and discussion of the near- and long-term drought-resilient goals of the region. This stage will set the goals of the region and the DRP.

**Part 2: Drought Impact Analysis**

To successfully update the DRP, data and information regarding the region’s water infrastructures, demand & supply, and climate will be closely reviewed. Additionally, a comprehensive vulnerability assessment will be conducted to review drought-related risks and document the vulnerabilities of the region in terms of water supply. This information will be set stage for producing strong and appropriate mitigation and response plans.

**Part 3: Drought Response Plan Development**

Development of the Drought Response Plan will build on Parts 1 and 2. Based on the regional drought-resilient goals and the vulnerabilities identified by the Member Agencies and stakeholders, the DRP will address a plan to mitigate the impacts of the drought, as well as a strategy on responding to critical drought levels in a cohesive and planned regional manner. The DRP will incorporate all of the details necessary for a comprehensive regional plan with near- and long-term drought response.

Schedule: There are several stages to develop the documents in the DRP. The following table shows the preliminary schedule to complete the aforementioned tasks. Additional details for the specifics within each stage are addressed in the *Evaluation Criterion A* in the section below.

**Table 2: Preliminary Schedule**

<u>PHASE</u>	<u>MILESTONE</u>	<u>END</u>
<b><i>Part 1: Collaborative Review of Regional and Local Plans</i></b>		
Stage 1:	Review of Regional and Local Plans	October 29, 2016
Stage 2:	Update Regional Drought-Resiliency Goals	January 27, 2017
<b><i>Part 2: Drought Impact Analysis</i></b>		
Stage 3:	Drought Monitoring Data Review	April 27, 2017
Stage 4:	Vulnerability Assessment	August 5, 2017
<b><i>Part 3: Drought Response Plan Development</i></b>		
Stage 5:	Mitigation Plan Development	November 13, 2017
Stage 6:	Response Strategy Development	February 21, 2018
Stage 7:	Drought Response Plan	June 21, 2018
<b><i>DRP Completion</i></b>		<b><i>June 21, 2018</i></b>

**Evaluation Criteria**

***Evaluation Criterion A – Need for a Drought Contingency Plan or Plan Update (40 points)***

*Describe the severity of the risks to water supplies that will be addressed in the Plan.*

With continual regional water supply challenges and reliability, IEUA is seeking to update and develop a more robust DRP that will incorporate several recently completed planning documents, initiatives and strategies that are focused on a holistic, integrated and proactive approach to

improve near- and long-term water resources management and drought response for the region rather than relying solely on imported water supply as written in IEUA's original 2009 Drought Plan. The foundation of this DPR is based on the following five regional water management plans: Integrated Water Resources Plan (IRP), the Water Use Efficiency Business Plan Update (WUE), the Recharge Master Plan Update (RMPU), and the Urban Water Management Plan (UWMP).

The severity of the drought risks range from High to Extreme, as described in the next sub criteria. The DPR will identify drought-related risks, which may include water supply sources, water quantity, water quality, infrastructure, etc. The severity of each risk may be rated based on the amount of industries impacted, the types of industries/users impacted, the duration of the impact, impacts to meeting water quality regulations, inability to meet water supply contractual requirements, and other relevant factors. To understand the severity and likelihood of each risk, the plan will conduct a vulnerability assessment, as referenced in the Vulnerability Assessment and Figure 2 of the proposal description. Below are preliminary risks and severities for further consideration.

*What are the risks to water supplies within the applicable geographic area that will be addressed in the plan update, and how severe are those risks?*

Preliminary risks to water supplies and challenges facing the region include the following:

- Sustainability of the Basin – There is a need to sustain or increase the Operating Safe Yield (OSY) for the Chino Basin. Severity is **Extreme** since it impacts approximately 55% of the regions drinking water supply.
- Land Subsidence – Targeting groundwater recharge or limiting localized groundwater production in specific areas to help mitigate and/or prevent land subsidence. Severity is **Extreme** due to safety concerns relating to land subsidence, and loss in groundwater storage capacity that may never be recovered.
- Supplemental Water Supplies – There are limited supply sources for groundwater recharge available to meet Chino Basin recharge goals. The region is dependent on securing supplemental water supplies to enhance and sustain long-term groundwater production. A goal is to maintain recycled water and groundwater supplies, as they are locally drought-resilient supplies that account for almost 70% of the regions total water supply needs. Severity is **High** as supplemental water can be used in a variety of methods, such as groundwater recharge, further treatment and direct reuse, etc.
- Water Quality – Slowly rising levels of total dissolved solids and nitrates in the groundwater basin have the potential to result in future loss of available supply caused by poor basin water quality. Water quality concerns will require additional treatment infrastructure for groundwater and recycled water. The severity is **Extreme** since the region relies on basin water for sustainability. Additionally, to improve water quality, the region and its customers would incur additional substantial operational costs, and potentially result in end-user rate increases.
- Water Supply – Known groundwater contamination plumes further stresses the availability of water supplies and capacity, as these areas cannot be utilized without extensive studies and treatment provided. The severity is **Extreme** as this issue has the potential to result in reduced water supply and storage for the region.

*Describe the existing or potential drought risks to specific sectors in the project area.*



**Agriculture** – The region currently produces feed crops for the dairy industry and other food crops on over 2,000 acres for consumption in Southern California, and beyond. These practices have a high potential to be interrupted or eliminated due to water quality and supply impacted by the drought.

**Industrial** – The region supplies water for various types of industries, including food & beverage, steel processing, airports and other beneficial industries. These industries rely on the water supply to operate and provide services, which helps maintain economic growth in the region.

**Urban use** – The service area currently has over 840,000 people that depend on these water supplies for food, families, business, sports and entertainments etc. As further drought impacts continue, decreased water quality and supply availability may result in supply interruptions for customers. The region also currently supplies water to several international and cable airports serving the region, and Southern California.

**Habitat** – The region currently discharges approximately 20,000 AFY water to sustain habitat along various creeks and channels, including the Prado Dam Wetlands, Chino Creek Wetlands and Educational Park, and other ecological habitats. These waters help sustain habitat and wildlife in the region.

*Are there public health concerns or social concerns associated with existing drought conditions?*

There are vast public and social concerns in the region with regards to a decreased water supply. The concerns are generally the loss of water to support the following users: Residential, Commercial, Industrial, Public/Institutional, Parks, Schools, Irrigation, and Agriculture. The region's water sources are limited, and are directly impacted by climate. If local water is unavailable, the region may receive a limited supply of imported water. The imported water supply has the potential for interruption, is dependent on MWD's pipelines, relies on available supply from the State Water Project (SWP), and supplies water to other major regions.

*Are there environmental concerns, such as potential impacts to endangered species?*

The drought brings varying concerns regarding maintaining suitable habitat for a variety of species, including endangered and threatened species. With wetlands, creeks, rivers and basins in the service area, there are various endangered and threatened species that have potential to be impacted by the drought conditions. Water supplies provide sustainability for these habitats and ecosystems, and for the various creatures who claim the region as their home. It is not only the animals of the watershed that are threatened by habitat degradation and the competition from non-native species, but plant life as well. A DRP is critical to their existence.

*Are there local economic losses?*

With decreased water supply and increased cost to supply treated water, local businesses and agencies are faced with business and financial impacts. As mentioned in the section above, the region serves residential, industrial, commercial, public and agricultural customers. The extreme drought conditions in our region will directly impact real estate values, businesses, and agencies financially, and has the potential to influence relocation of these customers to other areas. Customers include laundry services, water bottling, steel manufacturing, flower shops, parks, golf courses, and a range of other water-dependent businesses. A detailed plan on drought-resiliency, such as the DRP will benefit the region in terms of water sustainability and economy.

*Are there other drought-related risks not identified above?*

There are complex relationships between water and crises. While major known water resource concerns are identified above, as drought conditions worsen there is potential that water-related tensions may develop. Collaborating with the region's water agencies on a drought-resilient DRP will help find regional responses to drought conditions, and significantly reduce the risk of water-related conflicts.

*Will the plan update address a geographic area that is currently suffering from drought?*

Since 2012, Southern California has been challenged by drought conditions. This led to calls for voluntary and mandatory water use reductions from Governor Brown, numerous news articles about water supply conditions, and massive public outreach campaigns from water agencies across the State. Climate change impacts have already created critical challenges for water resources management in Southern California. More intense storm events and the changing frequency and duration of drought years are becoming evident throughout the State and the West. This makes future water supplies available to the region more uncertain, particularly imported water resources that are uniquely vulnerable to changes in the state's snowpack.

General climate change trends projected for California are that temperatures will increase and precipitation will increasingly fall as rain rather than snow. These trends will impact water supplies in two ways: higher temperatures will cause increased water demands; however, infrastructure to capture rain runoff is limited as water infrastructure in California was designed to capture slow melting snowpack instead of rapid running storm water.

*Describe any projected increases to the frequency, severity, or duration of drought in the geographic area resulting from climate change.*

Climatologists have changed the way they view drought in years past and now recognize ongoing higher temperatures and longer drought conditions may be the "new normal" for California. A study conducted by scientists at Stanford University entitled "Anthropogenic Warming Has Increased Drought Risk in California" has linked climate change with "more frequent occurrences of high temperatures and low precipitation that will lead to increased severe drought conditions". Droughts are expected to occur more frequently, more intensely, and last longer. The Natural Resources Defense Council (NRDC) estimates that if nothing is done to address the implications associated with climate change, between the years 2025 and 2100, the cost of providing water to the western United States will increase from \$200 billion to \$950 billion per year.

Climate change is one of the key factors that will have a substantial impact on water supplies. While recent droughts in California have been significant, climate change trends indicate a future of unprecedented "megadroughts" that have the potential to last multiple decades.

The DPR will address the assessment of the drought conditions, which include climate change (precipitation, temperature, etc.), limited imported water conditions, minimal snowpack, limited supply through creeks water resources (groundwater, storm water, recycled water, runoff, imported water, etc.), economic conditions, water efficiency, conservation, and other factors. Projections will include modeling of the drought conditions in an interactive and iterative process involving all stakeholders, and exhausting varying conditions.

The foundational drought response planning documents include an assessment of impacts that climate change could have on water supplies for the State and region. The assessment was prepared

using downscaled climate models from the Intergovernmental Panel on Climate Change (IPCC) Assessment. Gathering data available from the latest climate models will provide key information to understand the wide range of possible future climate conditions. The planning activities will further develop the climate model for forecasting near and long-term water availability based on previous data. This process will leverage the further development of data analysis and modeling tools to monitor the different aspects of the drought, including climate, terrain, water levels, and other factors.

Using the data and inputs above, the model ran different scenarios in an attempt to forecast drought conditions. The model provides a way to assess the variability of future water supply and demand forecasts to a wide range of scenarios that are built with a range of best-available data sources to depict the effect of future uncertainties. The objectives of the model are as follows:

- Forecast short-term and long-term demand and variability.
- Base the demand forecast on the latest demographic forecast.
- Utilize a conservation forecast method consistent with the Alliance for Water Efficiency (AWE) Tracking Tool that used for planning documents for conservation planning.
- Acquire the latest demographic forecast data from the Southern California Association of Government's latest Regional Transportation Plan.
- Input the updated demographic forecast into the demand forecast econometric equations to create an updated base forecast.
- Recalibrate the base forecast to normal demand (weather-normalized, employment-normalized).
- Update the service area monthly water demands to create empirical relationships between weather variation, the business cycle, and the region' demand variability.

To support this analysis the planning efforts will continue developing modeling tools to analyze and strategize different drought conditions.

#### *Status of Existing Planning Efforts*

The foundation of the DRP includes the drought aspects of several regional studies, strategies and plans. These include:

1. The 2009 Drought Plan
2. Recharge Master Plan Update (RMPU)
3. Integrated Water Resource Plan (IRP)
4. Urban Water Management Plan (UWMP)
5. Water Use Efficiency Business Plan (WUE)

The foundational documents listed above apply to various aspects of the region's drought conditions. The plans review climate conditions, recharging plans for the Chino Basin, regional water supply and demand, and urban water use and conservation programs. The DRP will build on these documents to develop a plan on how the region will respond to the near- and long-term conditions of the drought. The DRP will be a comprehensive plan incorporating the different aspects of the foundational documents. The stages of the DRP are as follows:

***Stage 1 – Review of Regional and Local Plans.*** The region has developed several foundational master planning documents which together function as a regional roadmap. A driver for the DRP

is to strategically position the region to be drought-resilient and have a response plan ready through technical collaboration, which includes the review of previous key strategic regional documents. The Task Force will develop a repository of key regional and local plans and programs, such as the Drought Plan, Santa Ana River Conservation and Conjunctive Use Program (SARCCUP), Integrated Water Resources Plan (IRP), Water Use Efficiency Business Plan, Urban Water Management Plan, Recycled Water Program Strategy, MWD's Water Supply Allocation Plan, etc. The Task Force will review the documents to determine key goals and factors to consider during the development of the DRP.

***Stage 2 – Update Regional Drought-Resiliency Goals.*** Key objectives from regional and local plans will be identified and incorporated at a level to guide the development regional DRP goals. Updating the DRP goals will provide clear direction to the regional agencies, as well as all cities, businesses, programs and the communities as to the goals and intent of a drought response program. Collaboration of agencies through use of approved and adopted regional planning documents will ensure that the local program goals are aligned with the short- and long-term needs of the region. Key factors and objectives will be extracted from the regional documents and prioritized to ensure the benefits of each local program (and future projects) will best fit the plan for the region.

***Stage 3 – Drought Monitoring Data Review.*** Regional data will be gathered, modeled and analyzed. Previous regional planning efforts have existing data and analysis on the anticipated supply and demand conditions for the region. This effort will consolidate the data and analysis and establish a regional model to understand the best strategies for a near- and long-term drought response plan. The analysis will also review the data and trends for previous drought responses and calls from the varying authorities and water supplies in an attempt to link their alerts with our region's responses, and potential mitigation for future consideration.

***Stage 4 – Vulnerability Assessment.*** A comprehensive assessment of existing water infrastructure will provide the region with a clear understanding of vulnerabilities that may impact future drought response. Water infrastructure includes water supply systems (recycled water pump stations, rivers, channels, desalters, etc.), storage systems (reservoirs, basins, and treatment plants), pipelines, interconnections (between systems, cities, etc.). The Task Force will pool resources to detail the different aspects of each infrastructure, including the following:

- **Description**—description of the infrastructure and the overall intent and context to explain the functions and objectives of the systems.
- **Operation**—the overall process for which the infrastructure serves to deliver a product, service, or result with the specific features and functions.
- **Costs**—estimated expenditures to maintain the infrastructure operable and available.
- **Life Expectancy**—aims to describe the overall life that the infrastructure is planned to be available for beneficial use based on the existing condition.
- **Location**—boundaries of the project, including city within the region, any special site information, and general ownership information.
- **Regional Benefit**—assistance to the regional water supply and demand. Benefits may include regional supply augmentation, demand reduction, optimization, options, program



support, or other opportunities, with approximate quantities and whether the benefits are short-term or long-term.

- **Local Benefit**—assistance to the local water supply and demand. Benefits may include local supply augmentation, demand reduction, optimization, options, program support, or other opportunities, with approximate quantities and whether the benefits are short-term or long-term.
- **Risk**—potential pitfalls, challenges, uncertain events or conditions that, if it occurs, has an effect on at least one objective.
- **Regional Prioritization**—ranking of the infrastructure with regards to the short-term and long-term regional benefits, costs, schedule, risks, etc. Priority matrices may be used as determined applicable to the Task Force.
- **Local Prioritization**—ranking of the infrastructure with regards to the short-term and long-term local benefits, costs, schedule, risks, etc. Priority matrices may be used as determined applicable to the Task Force.

***Stage 5 – Mitigation Plan Development.*** Drawing upon information from previous stages, the Task Force will develop drought scenarios and evaluate the risk associated with each versus the likelihood of it occurring. Based on the risk assessment, a plan will be developed detailing drought scenarios and the options available to mitigate impacts to the region. The mitigation plan will consider near- and long-term actions and response for mitigation. Near-term plans may involve maintenance project to rehabilitate existing infrastructure or systems, a preventative maintenance schedule, programs to evaluate existing infrastructure conditions, conservation efforts, inter-city agreements, and other short-term plans. Long-term mitigation plans may include new capital improvement projects for alternative water supplies, major interconnections, water storage programs, and other mitigation efforts aimed in the 5 to 20 year range. The mitigation plan will address strategies to convey how to lessen or eliminate the impact of drought conditions and address the challenges and constraints facing the region.

***Stage 6 – Response Strategy Development.*** Drawing upon information from previous stages and foundational and local documents, the Task Force will develop strategies for responding to drought conditions. The response strategy will include a clear description of the goals (developed in Stage 2) and the roles & responsibilities of regional and local agencies/districts. The response strategy will identify key triggers (in this case primarily from MWD), response options, time sensitivity, agencies involved, expectations, procedures, communication plan, response stages, and reinstating normal conditions. The response strategy will need to identify the various options for communication methods to quickly respond to the needs of the drought, such as daily bulletins, signage, messaging, email, community messaging, and other forms of communication to alert the users of the drought conditions and the urgent need to conserve. The strategy will need to detail the options of communication as well as the message(s) that will be conveyed. The Task Force will lead this critical effort and ensure that all stakeholders understand the conditions, roles and responsibilities of a prompt and effective drought response.

***Stage 7 – Regional Drought Response Plan.*** Based on the plan and strategy above, in addition to the effort to develop the goal and analyze the data, the regional Drought Response Plan, or DRP will be a comprehensive plan that addresses the goals and effort on a regional level, and

disaggregates the regional plan down to the local plans and strategies for near- and long-term drought responsiveness. With a cohesive DRP, the region will be able to clearly understand the levels of the drought, the responses (and options) to each level, the near- and long-term plans, and the operational and administrative roles and responsibilities for the Member Agencies. The DRP is expected to be a regional document that provides current information, and thus it is expected that the DRP be updated every 5 years, or as major changes are needed due to changing conditions.

### *Evaluation Criterion B – Inclusion of Stakeholders (30 points)*

#### *Identify stakeholders in the planning area*

Chino Basin Watermaster (CBWM): Created in 1978, CBWM is responsible for management of the Chino Basin in a way that it would be most beneficial to the region, as well as to equitably administer and enforce groundwater provisions. CBWM is governed by three diverse stakeholder groups, called Pools. The three Pools combined describe the specific interest of the CBWM:

- Overlying Agricultural Pool: representing dairymen, farmers, and the State of California
- Overlying Non-Agricultural Pool: representing area industries
- Appropriative Pool: representing local cities, public water districts, and private water companies

The Santa Ana Watershed Project Authority (SAWPA) will participate in the water resource related collaborative planning activities to support capital improvement strategies, and encourage integration and synergy in the regional watershed. SAWPA is a planning agency, and has a mission to plan and build facilities to protect the water quality of the Santa Ana River Watershed. The Santa Ana River Watershed spans from Los Angeles County, San Bernardino County, and Riverside County, which encompasses IEUA's region.

The following cities and Member Agencies will participate in planning activities: City of Chino, City of Chino Hills, City of Ontario, City of Montclair, Cucamonga Valley Water District, Fontana Water Company, Monte Vista Water District, and Inland Empire Utilities Agency. These stakeholders are specifically interested in how the plan will benefit the region and their specific city/area.

The stakeholders will participate on a few different levels, including the DRP Task Force, Water Managers Task Force, and Joint Board and Policy Committee. Different levels of staff from each stakeholder may be assigned to participate in different Task Forces. Involvement will include participating in the activities, workshops, meetings, analysis, review and collaboration.

#### *Describe stakeholders in the planning area who have expressed their support for the planning process.*

Stakeholders in the planning area who have expressed their support include all of the stakeholders listed above. Their participation has been instrumental in recent and current planning activities and are prepared to participate in the DRP. Their continued involvement will lead to the successful development of a strategic capital improvement program.

#### *Describe the efforts you will undertake to ensure participation by a diverse array of stakeholders in the development of a plan or plan update.*

IEUA has established a diverse array of stakeholders. To ensure their participation, IEUA has established different levels of involvement: Technical staff, management, executive management,

regional policy makers, and Board members. The planning efforts will need to continue to utilize the expertise of the following groups. Additional groups may be formed as needed to ensure participation by diverse stakeholders.

**DRP Task Force:** Consists of IEUA Member Agencies, which includes the seven contracting sewerage agencies, and the retail water agencies within the IEUA service area. Meetings will be held one to two times each month to discuss modeling assumptions, verify projections, establish project lists, and examine modeling results in detail. Agencies include representatives from: City of Chino, City of Chino Hills, City of Ontario, City of Montclair, Cucamonga Valley Water District, Fontana Water Company, Monte Vista Water District, and Inland Empire Utilities Agency.

**Water Managers Task Force:** After technical items are discussed and vetted, updates, core findings and recommendations will be presented at the monthly Water Managers Task Force meetings.

**Joint Board and Policy Committee Workshops:** Special joint workshops including members from IEUA's Board of Directors and the regional policy makers from the Regional Sewerage Policy Committee, as well as board members from the Monte Vista Water District (MVWD), and the General Manager from Fontana Water Company. These meetings will serve to update policy makers about the progress being made with the DRP as well as to receive policy direction.

The Chino Basin Watermaster (CBWM) works in partnership with municipalities, IEUA, and the Santa Ana Regional Water Quality Control Board to address water quality concerns in the Chino Basin, including construction and operation of the Chino Basin Desalters.

The Santa Ana Watershed Project Authority (SAWPA) will participate in the water resource related collaborative planning activities to support cost efficiency, integration, and synergy throughout the watershed, which expands beyond the region.

*Evaluation Criterion C – Project Implementation (20 points)*

*Describe how the required elements of a Drought Contingency Plan will be addressed in 2 years.*

The DRP has three major Parts, include 7 Stages as shown below. Each of the six elements will be included in the various parts of the project as reflected below and in the schedule. Additionally, to ensure the elements are included in the timeframe, the project schedule has included the time and effort to complete them in the stages. Based on the preliminary schedule, the project will be completed within two years and by June 21, 2018. The schedule with completion dates for each stage is shown in the Schedule section above. The stages below identify where the Elements will be included).

Part 1: Collaborative Review of Regional and Local Plans

Stage 1 - Review of Regional and Local Plans

Stage 2 – Update Regional Drought-Resiliency Goals

Part 2: Drought Impact Analysis

Stage 3 – Drought Monitoring Data Review (*Element 1 - Drought Monitoring*)

Stage 4 – Vulnerability Assessment (*Element 2 – Vulnerability Assessment*)

### Phase 3: Development of Regional and Local Capital Improvement Programs

Stage 5 – Mitigation Plan Development (*Element 3 – Mitigation Actions*)

Stage 6 – Response Strategy Development (*Element 4 – Response Actions*)

Stage 7 – Drought Response Plan (*Element 5 – Operational and Administrative Framework, Element 6 – Plan Update Process*)

#### *Describe the availability and quality of existing data and models*

The planning activities have and will continue to develop water supply and demand modeling tools to provide high-level analysis of the forecasted supply and demand in the region. Through coordination with modeling software consultants and the region's water agencies, data was entered into the models. The availability and quality of the existing data and models is high, and with further modeling development the models will be maintained and utilized by the regional water agencies.

#### ***Data Monitoring***

The actual water usage data is submitted monthly by the Member Agencies and analyzed by IEUA. IEUA and local agencies will work together to collect and monitor the data and analyze in comparison to the Baseline to determine the current response to the drought.

#### ***Econometric Model***

Water demands for the region were projected from 2015 to 2040 using an econometric model that incorporated factors for economic conditions, growth, water efficiency, housing density, and conservation program investments approved in the recent Capital Improvement Program. Projected demands were displayed as a range to reflect trend uncertainties. The water demand model was developed by:

- Acquiring the latest regional demographic forecasts from the Southern California Association of Government “2012 Regional Transportation Plan”.
- Inputting the demographic data into the econometric model equations to generate a base demand forecast.
- Calibrating the base demand forecast to identify corresponding water demand influences caused by factors including weather, employment, and economic cycles. A total of 12 factors were identified.
- Inputting the latest version of the Alliance for Water Efficiency (AWE) tracking tool for water savings that result from building codes and appliance standards (passive conservation) as well as regional programs that promote conservation (active conservation). Water savings are subtracted from water demand forecasts to ensure that water conservation is incorporated into the projections.
- Developing multiple water demand scenarios to plan for a range of possible futures.

Weather-induced change in demands was accounted for in two ways. First, an adjustment was made for long term climate change based on the National Oceanic and Atmospheric Administration (NOAA) Technical Report, the National Environmental Satellite, Data, and Information Service (NESDIS) 142-5: Regional Climate Trends and Scenarios for U.S. National Climate Assessment.



As a result of these outlooks on future climate conditions and recent weather trends, the demand forecast model includes outdoor water demand adjustments to account for climate change. IEUA performed a series of sensitivity analyses of urban outdoor demand and weather conditions.

### ***Water Demand & Supply Model***

IEUA worked with the RAND Corporation to develop a water demand and supply model to evaluate the impact of climate change on the IEUA service area. The model, used as a baseline, tabular estimates of IEUA's supplies and demands. A set of 106 climate scenarios for the IEUA region were derived from downscaled general circulation model results used for the Intergovernmental Panel on Climate Change Assessment Reports.

The climate scenarios and baseline water demands and supplies were then entered into a water management model developed in the Water Evaluation and Planning (WEAP) modeling system. The WEAP model used these inputs to estimate how water demands, supplies, runoff, flows, and storage would change under the 106 climate scenarios. This approach highlights supplies that provide greater reliability and are resilient to climate change impacts.

### ***Identify staff with appropriate technical expertise and describe their qualifications.***

**Sylvie Lee, Manager of Planning & Environmental Resources:** Mrs. Lee has been responsible for leading the development and implementation of various regional and local water resource plans. Her contributions have been instrumental in providing the region with a long-term water resource programs, strategies, plans, and implementation projects.

**Martha Davis, Executive Manager Policy Development:** Ms. Davis is responsible for the IEUA's legislative and policy development programs, including special initiatives addressing renewable energy, water supply development, and water quality protection. Ms. Davis serves on various Boards and is highly involved in water associations.

**Andy Campbell, Deputy Manager of Planning & Environmental Compliance:** Mr. Campbell is IEUA's recycled water recharge expert having personally conducted numerous recharge system commissioning and facilitated the current recharge permit. He was instrumental in IEUA's 2009 permit amendment that influenced California's recycled water recharge regulations. Mr. Campbell is a registered geologist and certified hydrogeologist with experience in water resources development.

**Jason Pivovarovff, Planning & Environmental Compliance Senior Engineer:** Mr. Pivovarovff served as Co-Project Manager on the Integrated Water Resources Plan. He is a registered professional engineer with experience in engineering project management, water resource planning and feasibility reports, water and recycled water modeling and facilitating stakeholder workshops to promote an informative decision making process through regional collaboration.

**Elizabeth Hurst, Planning & Environmental Compliance Water Resources Planner:** Ms. Hurst served as Co-Project Manager on the Integrated Water Resources Plan. Her experience includes managing a variety of regional plans and studies, managing the development of water modeling tools, facilitating development of the capital improvement program, and coordinating stakeholder workshops streamline regional support.

**Lisa Morgan-Perales, MPA, CWM, WUEPIL, Senior Water Resources Analyst:** Ms. Perales is responsible for planning, implementing and managing regional water use efficiency programs. Her experience includes water efficiency including program and project management, marketing, public outreach and education. Lisa holds a Grade 2 - Water Use Efficiency Practitioner Certification and a Landscape Water Manager Certification.

*Evaluation Criterion D – Nexus to Reclamation (10 points)*

*Is there a Reclamation project, facility, or activity within the planning area?*  
The planning activities covers the Inland Empire region, which spans 242 square miles in San Bernardino County. Within this region there have been various Bureau of Reclamation-funded plans and projects that have been completed (see Table 1: Past Working Relationships with Reclamation).

*Is the planning area in the same basin as a Reclamation project, facility, or activity?*  
Yes, there is a clear nexus between the Bureau of Reclamation and the capital improvement projects that will be detailed in the final DRP. These projects will serve the Chino Basin, where the Bureau has contributed over \$30 million of funds towards water plans and construction projects.

*In what way will the plan update benefit a basin where a Reclamation project is located?*  
The DRP will provide the Chino Basin with a roadmap of drought-resilient projects through conservation, alternative water supplies, storage, efficiency, reuse, and other sources. The agencies involved in the plan all serve the Chino Basin and are focused on optimizing the use of the basin for long-term water sustainability.

*Does the plan update support implementation of a relevant USBR initiative?*

Yes, the USBR recently announced the Drought Response program which contains the Drought Resiliency program. IEUA is proposing a project for the Resiliency grant. This project is one of the major projects identified in the RMPU recharge master plan. This project will provide approximately 6,000 AFY storm water and recharge water benefit. Projects identified in this plan will be collaboratively grouped such that grant funding can be strategically pursued to meet regional investment objectives. (YIELD and BENEFITS from RMPU project).

**Existing Drought Contingency Plan**

See Attachment 2 on the SF424 application for IRP Phase 1 drought plan.

**Required Permits or Approvals**

No permits or approvals are needed at this time for the IRP Phase 2. Should there be a need for permits in the future, IEUA will notify USBR of permits required.

**Letters of Support**

Letters of Support have been obtained from the Santa Ana Watershed Project Authority and from the Chino Basin Watermaster.







**Official Resolution**

Resolution will be signed by the Board on April 20, 2016.

**RESOLUTION NO. 2016-4-1**

**RESOLUTION OF THE BOARD OF DIRECTORS OF THE INLAND EMPIRE UTILITIES AGENCY\*, SAN BERNARDINO COUNTY, CALIFORNIA, AUTHORIZING THE INLAND EMPIRE UTILITIES AGENCY TO ENTER INTO A FINANCIAL ASSISTANCE AGREEMENT UNDER THE WATERSMART: DROUGHT CONTINGENCY PLANNING GRANTS FOR FY 2016 WITH THE U.S. DEPARTMENT OF INTERIOR - BUREAU OF RECLAMATION AND DESIGNATING A REPRESENTATIVE TO EXECUTE THE FINANCIAL ASSISTANCE AGREEMENT, AND ANY AMENDMENTS THEREAFTER**

**BE IT RESOLVED**, that the Inland Empire Utilities Agency\* (IEUA) is authorized to enter into a financial assistance agreement under the WaterSMART: Drought Contingency Planning Grants for FY 2016 with the U.S. Department of Interior - Bureau of Reclamation (USBR) for the IRP Phase II Planning Project;

**BE IT RESOLVED**, that IEUA’s Board of Directors authorizes the General Manager, or in his absence, his designees to execute the financial assistance agreement, any amendments, and any grant related documents thereto;

**BE IT RESOLVED**, that IEUA has the capacity to provide the amount of funding and/or in-kind contributions specified in the funding plan;

**BE IT RESOLVED**, that IEUA will work with the USBR to meet established deadlines for entering into a cooperative agreement, and;

**BE IT FURTHER RESOLVED**, that the IEUA Board of Directors hereby adopts Resolution No. 2016-4-1 on this 20th day of April, 2016.

\_\_\_\_\_  
Terry Catlin, President of the Inland Empire Utilities Agency\* and of the Board of Directors thereof

ATTEST:

\_\_\_\_\_  
Steven J. Elie, Secretary/Treasurer of the

Inland Empire Utilities Agency\* and of the Board of Directors thereof

\* A Municipal Water District

STATE OF CALIFORNIA )  
 ) SS  
COUNTY OF SAN BERNARDINO )

I, Steven J. Elie, Secretary/Treasurer of the Inland Empire Utilities Agency\*, DO  
HEREBY CERTIFY that the foregoing Resolution No. 2016-4-1 was adopted at a regular meeting  
on April 20, 2016 of said Agency\* by the following vote:

AYES:

NOES:

ABSTAIN:

ABSENT:

\_\_\_\_\_  
Steven J. Elie  
Secretary/Treasurer

(SEAL)

\* A Municipal Water District

## Project Budget

The total budget for this project is \$402,610. The details of this budget are provided in the information that follows.

### Funding Plan

*How the applicant will make its contribution to the cost-share requirement?*

The DRP has an estimated cost of \$402,610, and is within IEUA's Planning Document Project budget of \$1,000,000 in the approved FY 2015/16 Ten-Year Capital Improvement Plan (TYCIP).

*Describe any in-kind costs incurred before the anticipated Project start date that the applicant seeks to include as Project costs.*

There are no pre-award expenditures.

*Describe any funding requested or received from other Federal partners.*

No funding has been requested from any other Federal entities.

*Describe any pending funding requests that have not yet been approved, and explain how the Project will be affected if such funding is denied.*

There are not any pending funding requests.

Table 2. - Summary of Non-Federal Funding Sources

<b>Funding Sources</b>	<b>Funding Amount</b>
<b>Non-Federal Entities</b>	
1. IEUA*	\$202,610
2.	
3.	
<b>Non-Federal Subtotal</b>	<b>\$202,610</b>
<b>Funding Sources</b>	<b>Funding Amount</b>
<b>Other Federal Entities</b>	
1. USBR	\$200,000
2.	
3.	
<b>Other Federal Subtotal</b>	<b>\$200,000</b>
<b>Requested Reclamation Funding</b>	<b>\$200,000</b>
<b>Total Study Funding</b>	<b>\$402,610</b>

Table 3. - Funding Sources

<b>Funding Sources</b>	<b>% of Total Study Cost</b>	<b>Total Cost by Source</b>
Recipient Funding	51%	\$202,610
Reclamation Funding	49%	\$200,000
Other Federal Funding	0%	\$0
<b>Totals</b>		<b>\$402,610</b>

**Table 4. – Budget Proposal Format**

Budget Item Description	Computation		Quantity Type (Hours/days)	Total Cost
	\$/Unit	Hrs		
<b>Salaries and Wages</b>				<b>\$ 106,156.12</b>
Accountant II- TBN	\$ 29.63	140	Hours	\$ 4,148.20
Senior Accountant- Joyce Rucker	\$ 40.75	75	Hours	\$ 3,056.25
Grants Administrator- Laura Cashion	\$ 43.88	40	Hours	\$ 1,755.20
Grants Officer- Jason Gu	\$ 60.24	40	Hours	\$ 2,409.60
Executive Manager- Chris Berch	\$ 93.05	30	Hours	\$ 2,791.50
Manager of Planning & Environmental Resources- Sylvie Lee	\$ 77.61	100	Hours	\$ 7,761.00
Deputy Manager of Planning & Environmental Resources -Andy Campbell	\$ 67.04	30	Hours	\$ 2,011.20
Water Resources Planner- Elizabeth Hurst	\$ 49.08	620	Hours	\$ 30,428.67
Senior Engineer- Jason Pivovaroff	\$ 62.63	620	Hours	\$ 38,830.60
Executive Manager Policy Development- Martha Davis	\$ 93.05	60	Hours	\$ 5,583.00
Joe Grindstaff	\$ 131.23	30	Hours	\$ 3,936.90
Admin Assistant	\$ 28.70	120	Hours	\$ 3,444.00
<b>Fringe Benefits</b>				<b>\$ 79,617.09</b>
Accountant II- TBN	\$ 3,111.15			\$ 3,111.15
Senior Accountant- Joyce Rucker	\$ 2,292.19			\$ 2,292.19
Grants Administrator- Laura Cashion	\$ 1,316.40			\$ 1,316.40
Grants Officer- Jason Gu	\$ 1,807.20			\$ 1,807.20
Executive Manager- Chris Berch	\$ 2,093.63			\$ 2,093.63
Manager of Planning & Environmental Resources- Sylvie Lee	\$ 5,820.75			\$ 5,820.75
Deputy Manager of Planning & Environmental Resources -Andy Campbell	\$ 1,508.40			\$ 1,508.40
Water Resources Planner- Elizabeth Hurst	\$ 22,821.50			\$ 22,821.50
Senior Engineer- Jason Pivovaroff	\$ 29,122.95			\$ 29,122.95
Executive Manager Policy Development- Martha Davis	\$ 4,187.25			\$ 4,187.25
Joe Grindstaff	\$ 2,952.68			\$ 2,952.68
Admin Assistant	\$ 2,583.00			\$ 2,583.00

<b>Travel</b>				\$ -
None				\$ -
<b>Equipment</b>				\$ -
None				\$ -
<b>Materials/Supplies</b>				\$ -
Item A				\$
Item B				\$
<b>Contractual/Construction</b>				<b>\$130,000.00</b>
Modeling Software Programming Consultant	\$ 78,000.00			<b>\$ 78,000.00</b>
Drought Specialist Consultant	\$ 52,000.00			<b>\$ 52,000.00</b>
<b>Other</b>				
None				
<b>Total Direct Costs</b>				<b>\$315,773.21</b>
Indirect Costs- 27.93 %				<b>\$ 86,837.63</b>
<b>Total Project Costs</b>				<b>\$402,610.84</b>

### *Budget Narrative*

#### **Salaries and Wages**

Costs associated with IEUA project management, coordination with stakeholders, developing the Request for Proposal, soliciting proposals, consultant selection, award, monitoring plan development, reporting and grant administration. The services provided by IEUA staff are in-kind services. The rates that will be charged are actual salary rates plus staff benefits. Salary increases are generally awarded each year along with each employee's performance evaluation on their anniversary date. Many of IEUA's employees are represented by an Association Bargaining Unit. A MOU was negotiated which requires that staff receive cost of living adjustments (COLA) during the time period of this grant. The COLA effective 7/1/2015 is 3% of the base salary, 7/1/2016 is 3.5%, 7/1/2017 is 3.5%. Both represented and non-represented staff will receive the COLA. All staff, including grant administration staff, is able to directly charge the actual amount of time spent working on this project. A project number will be set up in the financial system to specifically track these costs. The legal expenses, if needed, are for obtaining permits and right-of way.

Current salaries for the identified key personnel including names and titles has been calculated based on the estimated hours and rate of compensation that will be required to fulfil the staffing needs for the proposed project as listed in Table 4.

#### **Fringe Benefits**

The fringe benefit rate of 75% are calculated by IEUA for budgeting purpose based on the prior year actuals. Costs used in the calculation include such items as employee insurance, taxes and retirement, paid leaves, employee incentive programs, uniforms, safety shoe and auto allowances. These rates are fixed rates for billing.

#### **Travel**



Not applicable.

**Equipment**

Not applicable.

**Materials and Supplies**

Not applicable.

**Contractual**

Modeling software programming consultants will be hired for this project to continue to develop the existing model to project the long-term regional water supply and demand.

A Drought Specialist Consultant will be hired to coordinate with all project consultants for smooth and timely implementation and completion of the project and prepare a plan for detailed studies and project implementation.

The consultants will further develop and expand on the current models to incorporate more recent climate trends, water demands, add the regional and local project scopes and attributes, project portfolios, and provide performance analysis of the various short- and long-term strategies.

**Other**

Not applicable.

**Indirect Costs**

The U.S. Department of Interior National Business Center (IBC) approved provisional indirect cost rate for IEUA is 27.93% for FY 2015. See the attached Indirect Cost Rate Agreement Letter for the FY 2015.

**Total Cost**

The total amount of Project costs is \$402,610.00