2015 Recycled Water Program Strategy Summary

The purpose of the Recycled Water Program Strategy (RWPS) was to update the 2005 Recycled Water Implementation Plan and the 2007 Recycled Water Three Year Business Plan. The primary objective of the RWPS was to update supply and demand forecasts and to help map changes for the Recycled Water Program (RW Program) to maximize the beneficial use of recycled water throughout the year. This approach is consistent with prior commitments of the Region, but also considers planning aimed towards the ability to adapt and provide beneficial use focused on strengthening the Region's base water supply by shifting towards groundwater recharge, injection and possibly direct potable reuse. This is necessary as changes in the Region's water resource priorities occur and increased water efficient landscape measures are adopted. The RWPS will be reevaluated at a minimum once every five years, but additional studies will be performed in the coming years to identify and present changes needed to accommodate the potential shift in recycled water use.

The planning period of the RWPS was through 2035, with a focus on the first ten years. Through this planning period, modeling was performed for a variety of demand conditions, including changes in direct use and groundwater recharge. Modeling evaluated what the remaining supply (reuse supply) would be after direct use demands and the Santa Ana River discharge obligation have been met. To achieve a greater annual yield from the RW Program, groundwater recharge was maximized to utilize the reuse supply when available. The RWPS also performed modeling to determine the ability to accommodate and absorb changes in direct use demand. This identified the capability to increase delivery to groundwater recharge if additional reuse supply was available.

The proposed RWPS projects address improvements necessary to achieve the goal of maximizing beneficial use of recycled water throughout the year. The recommended RWPS projects focus on either increasing the ability to deliver reuse supply to groundwater recharge, or relieve capacity constraints in order to meet the demand forecast. A comprehensive list of projects identified from the RWPS is provided in Attachment A. The RWPS prioritized projects by placing them into different implementation phases. The first and second phase of projects are included in the Agency's Capital Improvement Plan (CIP) through 2035,w hich have been previously presented through the Agency's cost of service study.

The RWPS projects were prioritized previously based on commitments received from the Region, such as the 2005 Implementation Plan, 2007 Three Year Business Plan, 2013 Recharge Master Plan Update (RMPU) and previously adopted Agency Ten Year CIP's (TYCIP). A comprehensive list of projects identified in the Agency's proposed CIP for the RW Program through 2035 is provided in Attachment B. At this time, new projects and concepts include initial feasibility studies for evaluating an external RW intertie with Western Riverside County Regional Wastewater Authority and conducting a RW Injection pilot study. Refer to Attachment A, project ID 49, 50 and 52.

The supply and demands evaluated in the RWPS are summarized in Table 1 below. Table 1 also identifies the maximum beneficial use that can be achieved with the projects included in the Agency's CIP through 2035. Attachment C provides a map identifying the locations of the recommended RWPS projects, with emphasis on the purpose, such as GWR capacity improvements, or improvements to meet direct use demands.

A cost summary of the Agency's CIP through 2035 for the RW Program, including the WC (recycled water) and RW (groundwater recharge) funds is presented in Table 2 below. Projects have been itemized to present 2015 through 2025 and 2025 through 2035 CIP costs.

Table 1: RWPS summary of RW Supply and Demands in Acre-Foot per Year

	2015	2020	2025	2030	2035
RW Supply[1]	60,200	64,300	69,700	75,100	79,800
SAR Obligation[2]	17,000	17,000	17,000	17,000	17,000
Direct Use Demands[3]	24,655	28,730	30,640	33,650	35,825
Reuse Supply Available	18,545	18,570	22,060	24,450	26,975
Potential Annual Recharge [4]	9,700-16,300	10,200-16,200	12,600-19,200	13,800-20,700	14,400-22,600
RW Injection[5]	-	-	-	5,000	5,000

Notes:

(1) Regional supply per Wastewater Facilities Master Plan TM 4 - Table 4-4, includes **3% loss due to treatment waste streams.**
(2) **Minimum discharge required by SAR Obligation is 16,850 AFY.**
(3) Represents approximately 90% of Member Agency direct use forecast. Planning assumption due to the potential of increased water efficient landscapes.
(4) R**ange of annual** deliveries to **GWR** based upon available reuse supply**. Minimum** estimated at **6-months and maximum 10-months of basin availability per year.**
(5) **Initial planning estimate, to be evaluated at a later time.**

Table 2: Cost summary of Agency's Recycled Water Program CIP through 2035

	Project Source	2015 to 2025 (TYCIP)	2025 to 2035
Direct Use Improvements	RWPS	$6,000,000	$35,800,000
Groundwater Recharge[1,2]	RWPS/RMPU	$8,615,000[2]	$47,800,000
Existing Projects[3]	TYCIP	$13,825,000	$0
Repair and Replacement (R&R)	AMP[4]	$8,905,000	$15,625,000
Operational Needs[5]	TYCIP	$16,275,000	$775,000
Total CIP Cost		**$53,800,000**	**$100,000,000**

Notes:

(1) Includes distribution improvements, IEUA/CBWM cost share projects (Victoria, San Sevaine and RP-3 basin improvement projects) and RMPU Soft Cost for Table 8-2c projects.
(2) IEUA/CBWM cost share projects only include the portion of the project cost funded by IEUA. Therefore, includes $181k for RMPU soft costs, refer to Attachment B, project ID 7.
(3) Includes projects from the 2005 RW Implementation Plan, 2007 Three Year Business Plan and previously adopted FY 14/15 TYCIP carried forward.
(4) Agency's Asset Management Plan.
(5) Including: upgrades needed for reliability, planning, permitting and feasibility studies.

While there are plans to recommend additional groundwater recharge basins in the long-term, only projects that have prior commitments are being considered in the Agency's TYCIP. Projects implemented through the RMPU provide adequate groundwater recharge capacity to allow the Region to maximize the available reuse supply for the next five to ten years. This provides the opportunity to reevaluate the RW Program once performance objectives are achieved from prior project commitments. Phase 2 through 4 projects identified from the RWPS will be reevaluated as changes in demand occur, or if more reuse supply is identified. This could either be from reduced direct use demands caused by changes in landscape irrigation or if an external RW supply is provided into the Region. As RWPS updates are preformed, the proposed projects included in the Agency's TYCIP will be revised accordingly to reflect the approved RW Program strategy.

The comprehensive RWPS report is currently being finalized and will be distributed for Member Agency review once received, tentative April 2015.

ATTACHMENT A - RWPS PROJECT LIST

Recycled Water Program - Capital Improvement Plan							
Implementation Phase	**Demand Trigger**	**Deficiency**	**Proposed Improvement**	**Total Estimated Project Cost**	**Cumulative CIP Costs**	**GWR Program Improvement**	**Direct Use Improvement**
	Existing Conditions	None	None - Existing	$ -	$ -	$ -	$ -
		Initial Phase of Improvements - Total Cost		**$ -**	**$ -**	**$ -**	**$ -**
1	Velocity Deficiency for Direct Use	Increase flow from RP-5 RW Pump Station	Discharge header modifications	$ 1,000,000	$ 1,000,000	$ -	$ 1,000,000
1	GWR to SSV Basin 1-3	2013 Recharge Master Plan Update - Basin modifications	Basin improvements and pipeline extension	$ 3,000,000	$ 4,000,000	$ 3,000,000	$ -
1	Increase GWR to Victoria Basin	2013 Recharge Master Plan Update - Basin modifications	Victoria basin modifications	$ 65,000	$ 4,065,000	$ 65,000	$ -
1	GWR to RP-3 New Cell	2013 Recharge Master Plan Update - Basin modifications	RP-3 New Cell	$ 1,650,000	$ 5,715,000	$ 1,650,000	$ -
1	930 PZ Max Summer Direct Use	Existing 30-inch pipeline undersized from RP-1 to Riverside Dr.	42-inch 930 PZ Parallel Pipeline	$ 5,000,000	$ 10,715,000	$ -	$ 5,000,000
1	Op. Flexibility and Increased GWR	Insufficient capacity for 1630E PZ GWR flows	RP-1 1158 Pump Station Upgrades	$ 3,900,000	$ 14,615,000	$ 3,900,000	$ -
		Phase 1 Improvements (2015 thru 2025) - Total Cost		**$ 14,615,000**	**$ 14,615,000**	**$ 8,615,000**	**$ 6,000,000**
2	930 PZ Max Summer Direct Use	Existing pipeline undersized from Chino to Schaeffer Ave.	New 930 PZ Parallel Pipeline	$ 10,000,000	$ 24,615,000	$ -	$ 10,000,000
2	GWR to Etiwanda Debris Basin	System expansion to serve GWR Basin	16-inch 1630E Pipeline and Booster PS	$ 4,000,000	$ 28,615,000	$ 4,000,000	$ -
2	Max Summer Direct Use & GWR	Deficient 1299 PZ transmission mains	Parallel 1299 PZ Pipeline and Extension	$ 9,000,000	$ 37,615,000	$ 4,500,000	$ 4,500,000
2	GWR to Wineville Basin	System Expansion to serve Wineville Basin	Wineville Basin Pipeline	$ 1,000,000	$ 38,615,000	$ 1,000,000	$ -
2	Increase Op. Storage	System optimization for GWR flows, system expansion to serve GWR	36-inch 1630E Pipeline to 1630E Tank	$ 5,000,000	$ 43,615,000	$ 5,000,000	$ -
2	Increase Op. Storage	System optimization for GWR flows, system expansion to serve GWR	Conversion of 1630E Storage Tank and Pipeline	$ 9,000,000	$ 52,615,000	$ 9,000,000	$ -
2	GWR to 1630W PZ	System expansion to serve GWR Basins	1630W Booster Pump Station Capacity Upgrades	$ 3,000,000	$ 55,615,000	$ 3,000,000	$ -
2	GWR to LowerDay	System expansion to serve Lower Day Basin	24-inch Pipeline to Lower Day	$ 9,000,000	$ 64,615,000	$ 9,000,000	$ -
2	GWR to LowerDay	Potential GWR Expansion - Basin modificaiton	Lower Basin (RMPU)	$ 2,500,000	$ 67,115,000	$ 2,500,000	$ -
2	Velocity Deficiency for Direct Use	Existing pipeline undersized in Bickmore and Kimball parallel	24-inch 800 PZ Pipeline in Kimball Ave	$ 9,500,000	$ 76,615,000	$ -	$ 9,500,000
2	GWR to Montclair Basins	System expansion to serve Montclair Basin	30-inch 1299 PZ Pipeline to Montclair Basins	$ 5,500,000	$ 82,115,000	$ 5,500,000	$ -
2	GWR Improvements	Upsize existing basin turnouts	Increase flow control valve capacity	$ 1,500,000	$ 83,615,000	$ 1,500,000	$ -
2	Max Summer Direct Use & GWR	Pump capacity exceeded to serve peak direct use and future GWR	RP-4 1158 and 1299 PZ Pump Station Capacity Upgrades	$ 5,600,000	$ 89,215,000	$ 2,800,000	$ 2,800,000
2	Max Summer Direct Use	Pump capacity exceeded to serve peak direct use demand periods	RP-1 930 PZ Pump Station Capacity Upgrades	$ 5,500,000	$ 94,715,000	$ -	$ 5,500,000
2	Max Summer Direct Use	Pump capacity exceeded to serve peak direct use demand periods	CCWRF Pump Station Capacity Upgrades	$ 3,500,000	$ 98,215,000	$ -	$ 3,500,000
		Phase 2 Improvements (2025 thru 2035) - Total Cost		**$ 83,600,000**	**$ 98,215,000**	**$ 47,800,000**	**$ 35,800,000**
3	Future Basin	System expansion to serve College Heights Basin	36-inch 1630W Pipeline in Foothill Blvd	$ 14,070,000	$ 112,285,000	$ 14,070,000	$ -
3	Future Basin	System expansion to serve College Heights Basin	College Hts East	$ 500,000	$ 112,785,000	$ 500,000	$ -
3	Future Basin	System expansion to serve College Heights Basin	College Hts West	$ 500,000	$ 113,285,000	$ 500,000	$ -
3	Max Summer Direct Use	Capacity in the 1158 PZ and 1299 PZ	New 1158 to 1299 Booster Pump Station	$ 3,800,000	$ 117,085,000	$ 1,900,000	$ 1,900,000
3	Max Summer Direct Use	Capacity in the 1158 PZ and 1299 PZ	24-inch 1158 PZ Pipeline	$ 16,000,000	$ 133,085,000	$ 8,000,000	$ 8,000,000
3	Max Summer Direct Use	Capacity in the 1158 PZ and 1299 PZ	4.0 MG 1158 PZ Storage Tank	$ 9,000,000	$ 142,085,000	$ 4,500,000	$ 4,500,000
3	Max Summer Direct Use	Capacity in the 1158 PZ and 1299 PZ	16-inch 1299 PZ Pipeline	$ 3,600,000	$ 145,685,000	$ -	$ 3,600,000
		Phase 3 Improvements - Total Cost		**$ 47,470,000**	**$ 145,685,000**	**$ 29,470,000**	**$ 18,000,000**
4	Future Basin	System expansion to serve Grove Basin	12-inch to Grove Basin	$ 270,000	$ 145,955,000	$ 270,000	$ -
4	GWR to Jurupa (1158 PZ)	System expansion to serve GWR Basin	36-inch Pipeline in 1158 PZ	$ 11,940,000	$ 157,895,000	$ 11,940,000	$ -
4	GWR to Jurupa (1158 PZ)	System expansion to serve GWR Basin	30-inch Pipeline in Jurupa Street to Jurupa Basin	$ 3,290,000	$ 161,185,000	$ 3,290,000	$ -
4	GWR to Jurupa (1158 PZ)	System expansion to serve GWR Basin	20-inch Pipeline in Jurupa Street	$ 530,000	$ 161,715,000	$ 530,000	$ -
4	Future Basin	Potential GWR Expansion	Upland Basin demand	$ 750,000	$ 162,465,000	$ 750,000	$ -
4	Max Summer Direct Use	Pipeline undersized for demands condition	24-inch 1050 PZ Parallel Pipeline	$ 990,000	$ 163,455,000	$ -	$ 990,000
4	Max Summer Direct Use	Pump capacity exceeded to serve peak direct use demand periods	RP-1 930 Pump Station Capacity Upgrades	$ 1,160,000	$ 164,615,000	$ -	$ 1,160,000
4	Max Summer Direct Use	Pump capacity exceeded to serve peak direct use demand periods	RP-1 1050 Pump Station Capacity Upgrades	$ 1,020,000	$ 165,635,000	$ -	$ 1,020,000
		Phase 4 Improvements - Total Cost		**$ 19,950,000**	**$ 165,635,000**	**$ 16,780,000**	**$ 3,170,000**
				$ 165,635,000		**$ 102,665,000**	**$ 62,970,000**

ATTACHMENT B - CIP FORECAST THROUGH 2035

Project No.	ID	Fund	Project Description	Total Project Cost	2015-2025 RWPS	2015-2025 Direct Use	2015-2025 GWR + RMPU Cost Share	2015-2025 RMPU	2015-2025 Existing	2015-2025 R&R	2015-2025 Operational Needs	2025-2035 RWPS	2025-2035 RMPU	2025-2035 Existing	2025-2035 R&R	2025-2035 Operational Needs
RW15004	1	RW	Lower Day RMPU Project (100% cbwm)	$ -	$ -											
TBD-17	2	RW	RMPU Construction Costs (100% cbwm)	$ -	$ -											
TBD	3	RW	Agencywide GWR Environmental Permits (50% cbwm)	$ 50,000	$ -				$ 50,000							
TBD	4	RW	Ely Basin Turnout Remote Control Upgrades	$ 600,000	$ -				$ 600,000							
TBD	5	RW	Prado Basin Adaptive Management Plan Monitoring & Report (95% cbwm)	$ 300,000	$ -						$ 300,000					
TBD	6	RW	RW Asset Management (50% cbwm)	$ 1,250,000	$ -					$ 625,000					$ 625,000	
RW15003	7	RW	RMPU Soft Costs (95% cbwm)	$ 181,000	$ -			$ 181,000								
EN13040	8	WC	Prado Dechlor Communication System	$ 181,735	$ -				$ 181,735							
EN06025	9	WC	Wineville Extension Pipeline Segment A	$ 2,150,000	$ -				$ 2,150,000							
EN12016	10	WC	North CIM Lateral	$ 210,000	$ -				$ 210,000							
EN13001	11	WC	San Sevaine Improvements (50% cbwm)	$ 3,000,000	$ 3,000,000		$ 3,000,000									
EN13022	12	WC	930 RW Reservoir	$ 50,000	$ -				$ 50,000							
EN13023	13	WC	930 Pressure Zone Pipeline	$ 50,000	$ -				$ 50,000							
EN13041	14	WC	RP-5 RW PS Process Control Sys Migration	$ 280,000	$ -					$ 280,000						
EN13045	15	WC	Wineville Extension Pipeline Segment B	$ 1,650,000	$ -				$ 1,650,000							
EN13048	16	WC	Second 12kV Feeder to TP-1	$ 1,500,000	$ -						$ 1,500,000					
EN14042	17	WC	RP-1 1158 Pump Station Improvements	$ 3,900,000	$ 3,900,000		$ 3,900,000									
EN14043	18	WC	800 Zone Capacity Implementation (RP-5 Pump Station Piping Upgrades)	$ 1,000,000	$ 1,000,000	$ 1,000,000										
EN15002	19	WC	1158 Reservoir Site Cleanup Project	$ 500,000	$ -					$ 500,000						
EN15050	20	WC	1630 W PS Improvements (Surge Protection & VFD Replacement)	$ 1,400,000	$ -				$ 1,400,000							
EN19003	21	WC	RP-1 Parallel Outfall Pipeline from RP-1 to Riverside Dr	$ 5,000,000	$ 5,000,000	$ 5,000,000										
TBD-21	22	WC	RP-1 Utility Water Flow Meter	$ 300,000	$ -						$ 300,000					
TBD	23	WC	930 to 800 West CCWRF PRV	$ 600,000	$ -						$ 600,000					
TBD-26	24	WC	1299 pressure zone pipeline surge tank	$ 400,000	$ -				$ 400,000							
TBD	26	WC	RW Pressure Sustaining Valve	$ 850,000	$ -				$ 850,000							
TBD	27	WC	1299 Pressure Zone Pipeline Capacity Upgrades	$ 9,000,000	$ -							$ 9,000,000				
TBD-28	28	WC	Recycled Water Pump Station Emergency Generation Upgrade	$ 6,000,000	$ -						$ 6,000,000					
TBD	29	WC	Wineville Basin Pipeline	$ 1,000,000	$ -							$ 1,000,000				
WR15019	30	WC	RP-3 Basin Improvements (50% cbwm)	$ 1,650,000	$ 1,650,000		$ 1,650,000									
WR15020	31	WC	Victoria Basin Improvements (50% cbwm)	$ 65,000	$ 65,000		$ 65,000									
WR15021	32	WC	Napa Lateral/SB Speedway	$ 6,000,000	$ -				$ 6,000,000							
EN09007	34	WC	1630 East Reservoir & Segment B Pipeline	$ 14,000,000								$ 14,000,000				
TBD	35	WC	RP-4 1158 and 1299 Pump Station Upgrades	$ 5,600,000								$ 5,600,000				
EN20002	36	WC	Etiwanda Debris Basin Pipeline and Pump Station	$ 4,000,000								$ 4,000,000				
TBD	37	WC	RP-1 Parallel Outfall Line (Chino to Schaeffer)	$ 10,000,000								$ 10,000,000				
TBD	38	WC	2025-2030 Recycled Water Projects	$ 20,000,000								$ 20,000,000				
TBD	39	WC	2030-2035 Recycled Water Projects	$ 20,000,000								$ 20,000,000				
EN12019	41	WC	GWR & RW SCADA Communication System Upgrades (50% cbwm)	$ 232,500	$ -				$ 232,500							
TBD-08	42	WC	WC Emergency O&M Projects	$ 10,000,000	$ -					$ 5,000,000					$ 5,000,000	
TBD-07	43	WC	WC OE Projects	$ 1,000,000	$ -						$ 500,000					$ 500,000
EN14044	44	WC	RW Hydraulic Modeling for FY 14/15	$ 50,000	$ -						$ 50,000					
TBD-109	45	WC	RW Hydraulic Modeling	$ 550,000	$ -						$ 275,000					$ 275,000
TBD	46	WC	RW Program Strategy	$ 500,000	$ -						$ 500,000					
TBD	47	WC	WC Planning Documents	$ 1,000,000	$ -						$ 1,000,000					
TBD	48	WC	WC Asset Management	$ 12,500,000	$ -					$ 2,500,000					$ 10,000,000	
TBD	49	WC	RW Injection Pilot Study	$ 500,000	$ -						$ 500,000					
TBD	50	WC	WRCWRA Planning Study	$ 1,000,000	$ -						$ 1,000,000					
TBD	51	WC	WRCWRA (purchase costs)	$ 3,750,000	$ -						$ 3,750,000					
			Total CIP Costs	**$ 153,800,000**	**$ 14,615,000**	**$ 6,000,000**	**$ 8,615,000**	**$ 181,000**	**$ 13,824,235**	**$ 8,905,000**	**$ 16,275,000**	**$ 83,600,000**	**$ -**	**$ -**	**$ 15,625,000**	**$ 775,000**
								53,800,235							**$100,000,000**	

ATTACHMENT C – RWPS PROJECT MAP

Victoria Basin Improvements from 2013 RMPU

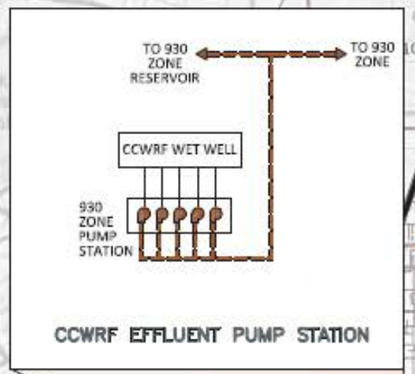
SSV Basins 1-3 from 2013 RMPU

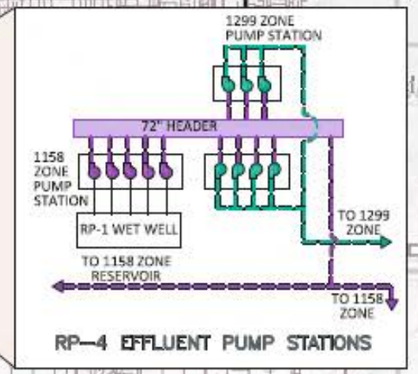
930 PZ Parallel Pipeline to Riverside Dr.

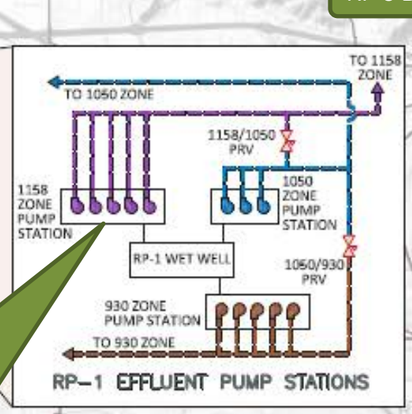
RP-3 Basin (New Cell) from 2013 RMPU

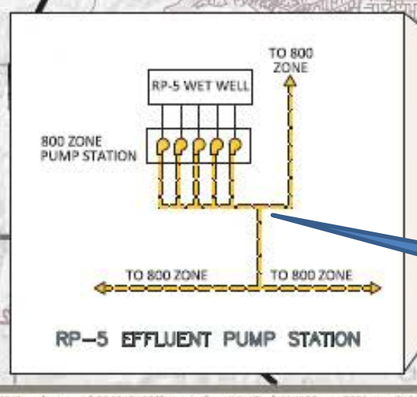
RP-1 1158 PZ Pump Station Improvements

RP-5 800 PZ Pump Station Piping Upgrades









Direct Use Improvement

GWR Improvement

Stantec
38 TECHNOLOGY DRIVE, SUITE 100
IRVINE, CA 92618
949.923.6000 stantec.com

Prepared For:
Inland Empire Utilities Agency
A MUNICIPAL WATER DISTRICT

GRAPHIC SCALE
0 4250' 8500' 17000'
(IN FEET) 1 inch = 8500 FT

Regional Recycling Plants and Effluent Pump Stations

RWPS Project Location Map for 2015 through 2025

ATTACHMENT C – RWPS PROJECT MAP

GWR to Etiwanda Debris Basin and PS

GWR to Lower Day Basin and Pipeline

GWR to Montclair Basins

930 PZ Parallel Pipeline Chino to Schaeffer Ave..

1630W Pump Station Upgrades

CCWRF 930 PZ Pump Station Upgrades

930 PZ Parallel Pipeline Chino to Schaeffer Ave..

930 PZ Parallel Pipeline in Kimball Ave

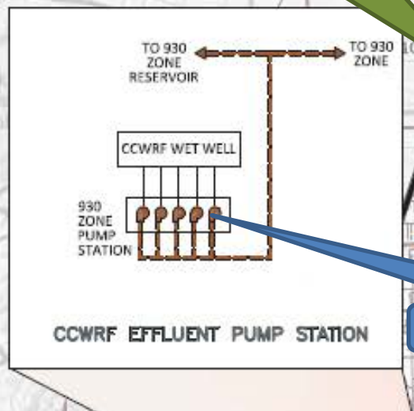
GWR to Wineville Basin

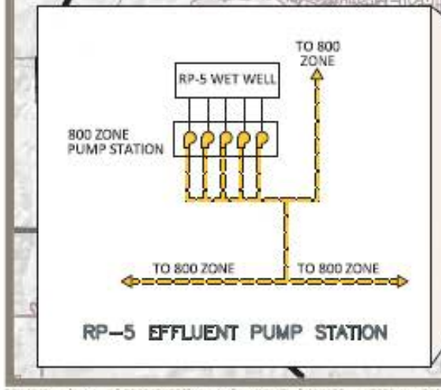
1630E Storage Tank and Pipeline

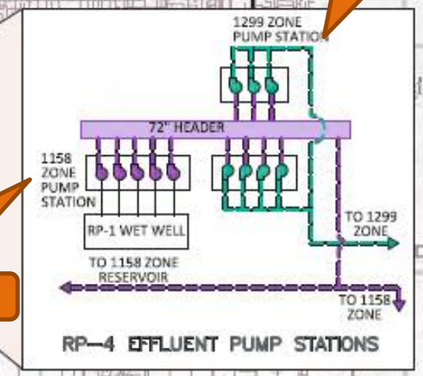
RP-4 1299 PZ Pump Station Upgrades

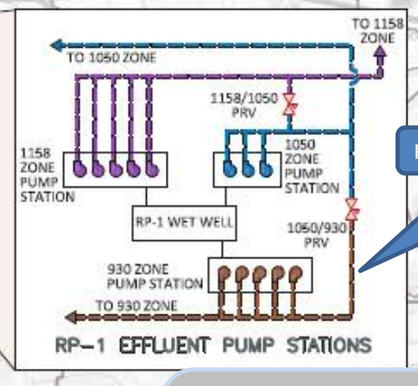
RP-4 1158 PZ Pump Station Upgrades

RP-1 930 PZ Pump Station Upgrades









Direct Use Improvement

GWR Improvement

GWR and Direct Use

LEGEND:

- Existing Basin
- 800 PZ (Existing)
- 930 PZ (Existing)
- 1050 PZ (Existing)
- 1158 PZ (Existing)
- 1299 PZ (Existing)
- 1630 PZ (Existing)
- Storage Tank
- Pump Station
- PZ Pressure Zone
- 18 Pipe Diameter (Inches)
- PRV
- Regional Recycling Plant

Stantec
38 TECHNOLOGY DRIVE, SUITE 100
IRVINE, CA 92618
949.923.6000 stantec.com

Inland Empire Utilities Agency
A MUNICIPAL WATER DISTRICT

GRAPHIC SCALE
0 4250' 8500' 17000'
(IN FEET) 1 Inch = 8500 FT

IEUA RWPS
Regional Recycling Plants and Effluent Pump Stations
RWPS Project Location Map for 2025 through 2035