NOTICE OF SPECIAL JOINT WORKSHOP OF THE IEUA BOARD AND REGIONAL POLICY COMMITEE

OF THE

BOARD OF DIRECTORS

OF THE

Inland Empire Utilities Agency
A MUNICIPAL WATER DISTRICT

WILL BE HELD ON

WEDNESDAY, NOVEMBER 4, 2015
10:00 A.M.

AT THE OFFICE OF THE AGENCY
6075 KIMBALL AVENUE, BUILDING A,
CHINO, CA 91761

Inland Empire Utilities Agency
A MUNICIPAL WATER DISTRICT

AGENDA

SPECIAL JOINT WORKSHOP OF THE INLAND EMPIRE UTILITIES AGENCY BOARD OF DIRECTORS AND THE REGIONAL POLICY COMMITTEE

WEDNESDAY, NOVEMBER 4, 2015
10:00 A.M.

INLAND EMPIRE UTILITIES AGENCY*
AGENCY HEADQUARTERS
6075 KIMBALL AVENUE, BUILDING A
CHINO, CALIFORNIA 91708

CALL TO ORDER
OF THE JOINT INLAND EMPIRE UTILITIES AGENCY BOARD OF DIRECTORS AND REGIONAL POLICY COMMITTEE MEETING

FLAG SALUTE

PUBLIC COMMENT

Members of the public may address the Board on any item that is within the jurisdiction of the Board; however, no action may be taken on any item not appearing on the agenda unless the action is otherwise authorized by Subdivision (b) of Section 54954.2 of the Government Code. Those persons wishing to address the Board on any matter, whether or not it appears on the agenda, are requested to complete and submit to the Board Secretary a "Request to Speak" form which are available on the table in the Board Room. Comments will be limited to five minutes per speaker. Thank you.

ADDITIONS TO THE AGENDA

In accordance with Section 54954.2 of the Government Code (Brown Act), additions to the agenda require two-thirds vote of the legislative body, or, if less than two-thirds of the members are present, a unanimous vote of those members present, that there is a need to take immediate action and that the need for action came to the attention of the local agency subsequent to the agenda being posted.

1. WORKSHOP

A. INTEGRATED WATER RESOURCES PLAN (IRP)

B. RECYCLED WATER POLICY PRINCIPLES

2. ADJOURN

*A Municipal Water District

In compliance with the Americans with Disabilities Act, if you need special assistance to participate in this meeting, please contact the Board Secretary (909) 993-1736, 48 hours prior to the scheduled meeting so that the Agency can make reasonable arrangements.

Proofed by: SR

Declaration of Posting

I, April Woodruff, Board Secretary of the Inland Empire Utilities Agency*, A Municipal Water District, hereby certify that a copy of this agenda has been posted by 5:30 p.m. at the Agency's main office, 6075 Kimball Avenue, Building A, Chino, CA on Thursday, October 29, 2015.

Stephanie Riley

for April Woodruff

WORKSHOP

1A

Inland Empire Utilities Agency
A MUNICIPAL WATER DISTRICT

Date: November 4, 2015

To: The Honorable Board of Directors and
Regional Policy Committee

From: P. Joseph Grindstaff
General Manager

Submitted by: Chris Berch CP
Executive Manager of Engineering/Assistant General Manager

Sylvie Lee
Manager of Planning and Environmental Resources

Subject: Integrated Water Resources Plan

RECOMMENDATION

It is requested that the Board of Directors and Regional Policy Committee develop a consensus in support of the following water supply strategies for the Integrated Water Resources Plan:

Recycled Water: Continue to invest in recycled water projects to maximize the beneficial reuse.

Groundwater: Acquire additional supplemental water to enhance groundwater recharge, sustain production and reduce basin salinity.

Conservation: Implement measures to reduce current urban demand at least 10% to enhance water supply resiliency. Outdoor water efficiency is the top priority.

Imported Water: Strategically maximize the purchase of imported water for recharge or in-lieu when available.

Stormwater: Continue to maximize stormwater recharge projects, including rainwater capture and infiltration.

Supplemental Water: Pursue external water supplies including exchanges, storage and water transfers to augment groundwater recharge and recycled water programs. External supplies include surface, imported and non-potable water.

BACKGROUND

Over the past 15 years, our agencies have successfully worked together to drought-proof the region by making significant investments in groundwater, recycled water, and conservation programs. These programs developed water supplies that supported and continued economic development and growth. These investments leveraged the region's ability to secure hundreds of millions of dollars in state and federal grants and loans. Over the next two years, more than a billion dollars of state and federal grants and loans will be available to support additional water supply development.

To ensure that the region is prepared for this next round of funding opportunities, IEUA in partnership with the member agencies have developed an Integrated Water Resources Plan (IRP) to guide the next round of proposed investments.

In order to meet the schedule for upcoming funding opportunities and establish planning priorities, the IRP process has been divided into two phases:

> **Phase 1 – Analysis and Recommendations:** Phase 1 has focused on an extensive analysis of future projected water needs and water supply strategies under conditions of climate change and growth. The final report will summarize the recommended regional water resource strategies, corresponding ranges of costs for the various supply categories and a regionally developed, all-inclusive list of potential supply projects (local and regional). This report will be used to complete a Programmatic Environmental Impact Report (PEIR), which is critical for grant eligibility. Phase 1 will be completed by spring 2016.
>
> **Phase 2 - Implementation and CIP:** Phase 2 will address additional detailed project level analysis including project scopes, costs, prioritization, and implementation schedule. Phase 2 will also include the disaggregation of the regional demand and supplies to the local, retail level. Continued discussions may be facilitated through a water forum. Phase 2 is anticipated to begin in May 2016.

Staff has made significant progress on Phase 1. Since June 2012, workshops have been conducted with member agencies to determine 2040 water demands, assess climate impact on local water supplies and stress test various water supply strategies. Key milestones made during this process in 2015 are summarized below.

- June - Established a projected regional urban demand range of 220,000 - 267,000 acre-feet per year (AFY) by 2040.
- July - Identified over 70 potential water supply projects and opportunities.
- August - Established IRP goals of "Resilience, Water Efficiency, Sustainability and Cost Effectiveness" with representatives from the Joint IEUA Board/Policy Committee.
- September - Performed climate change modeling of current water supplies and developed eight water supply strategies.
- October - Performed resiliency testing and analysis to identify the recommended water management strategies for the IRP.

GOALS

The overarching goals that guided the IRP process and analysis are:

1. Resilience: Regional water management flexibility to adapt to climate change and economic growth, and any changes that limit, reduce, or make water supplies unavailable.
2. Water Efficiency: Meet or exceed rules and regulations for reasonable water use.
3. Sustainability: Provide environmental benefits, including energy efficiency, reduced greenhouse gas emissions, and water quality improvements to meet the needs of the present without compromising the ability of future generations meeting their own needs.
4. Cost-Effectiveness: Supply regional water in a cost effective manner and maximize outside funding.

REGIONAL 2040 DEMAND PROJECTION

Based on the assumptions made through the IRP process, the estimated regional demand is 295,000 acre-feet (AF), which includes urban municipal and industrial demands of 267,000 AF, Santa Ana River discharge obligation of 17,000 AF, and the Chino Desalter replenishment requirement of 11,000 AF.

CLIMATE IMPACT ASSESSMENT

The IRP evaluated the impacts of climate change on our region's future water needs. To do this, RAND Corp, the agency's consultant, created a model for the region that included 106 climate and hydrology projections from the Intergovernmental Panel of Climate Change Assessment. Results indicate that the majority of the region's local supplies will decrease by 2040 as shown in Table 1. The primary drivers for this reduction are projected temperature increases and the unpredictability of precipitation. On average, the availability of climate dependent water supplies, such as stormwater, local surface and imported water will reduce by approximately 30 percent over the next 20 years.[i]

Table 1: Local Supply Availability in year 2040

	Supply Available	
Supply Type	**Baseline (Acre-Foot per Year)**	**Baseline under Climate Impact (% of Baseline)(1)**
Recycled Water	64,700	100%
Groundwater	91,300	96%
Stormwater(2)	6,400	69%
Local Surface	22,100	63%
Imported Water(3)	69,750	77%

Notes:

(1) Based on the range of supply that falls within 75 percent of the studied climate projections.

(2) Only includes the projected increase in stormwater capture and recharge per the 2013 CBWM Recharge Master Plan Update. Supply availability to start in year 2020.

(3) State Water Project supply availability is expected to decrease due to constraints on the Delta and projections of reduced snowfall in the Sierra Nevadas.

WATER SUPPLY STRATEGIES

A water supply strategy is a combination of water supply and conservation projects or opportunities that the region could pursue to help achieve the goals of the IRP. A total of eight different water supply strategies were developed during the course of the IRP workshops for resiliency testing across the 106 climate projections. These strategies were as follows:

- **Strategy 1**: Maximize Chino basin groundwater, including prior stored groundwater
- **Strategy 2A**: Maximize recycled water (including external supplies) and local supply projects and implement minimal conservation
- **Strategy 2B**: Strategy 2A plus securing supplemental imported water from MWD and non-MWD sources
- **Strategy 3A**: Maximize recycled water (including external supplies) and implement moderate conservation
- **Strategy 3B**: Strategy 3A plus implement high conservation
- **Strategy 4**: Maximize supplemental water supplies and recycled water (including external supplies) and implement minimal-moderate level of conservation
- **Strategy 5A**: Maximize the purchase of imported water from MWD and implement minimal-moderate level of conservation
- **Strategy 5B**: Strategy 5A plus maximize local recycled water

RESILIENCY TESTING RESULTS

Strategies 2B, 3A, 3B, 4 and 5B performed well and were able to meet future demands. Strategies 3B and 4 had the added benefit of building storage reserves to help accommodate for future uncertainties or catastrophic events, such as a major facility/pipeline breaks or loss in supplies. Alternatively, these reserves could also be used to enhance supply reliability within the Santa Ana watershed and across Southern California.

Analysis of the performance of the eight water supply strategies resulted in the following recommendations:

- Continue investment in recycled water projects to maximize the beneficial reuse.
- Acquire supplemental water to enhance groundwater recharge and sustain production.
- Implement conservation measures to reduce current urban demand by at least 10 percent to enhance water supply resiliency. Outdoor water efficiency is the top priority.
- Strategically maximize the purchase of supplemental water for recharge or in-lieu when available.
- Include external supplies, such as surface, imported and non-potable water, strategically in combination with conservation to augment groundwater recharge, recycled water and build storage reserves.
- Continue to maximize stormwater recharge projects, including rainwater capture and infiltration.

IEUA staff greatly appreciated the engagement and assistance of member agency staff in the IRP discussion.

The Integrated Water Resources Plan is part of the Agency's Recycled Water and Groundwater Recharge Business Goal objectives that IEUA will develop and implement an integrated water resource management plan that promotes cost-effective, reliable and sustainable water use along with economic growth within the service area.

PRIOR BOARD ACTION

None.

IMPACT ON BUDGET

None.

Attachments:

1. August 26, 2015 IRP presentation – supply strategy building workshop
2. October 13, 2015 IRP presentation – supply strategy modeling results and lessons learned
3. Water supply strategy project summary table
4. Additional supplies and capacity summary table
5. IRP intent letter dated October 1, 2015
6. November 4, 2015 IRP presentation – Joint Policy workshop

[i] To note, the 2040 baseline supply availability includes no climate impacts and assumes projects adopted in the Agency's Fiscal Year 2015-16 Ten Year Capital Improvement Plan are constructed. Therefore, no additional investments are made after the year 2025.

Attachment 1

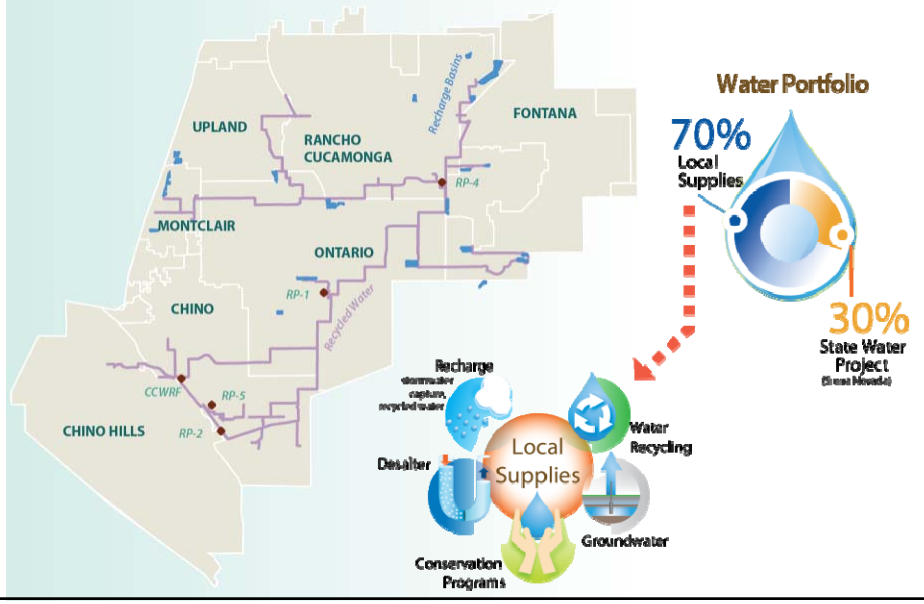
Integrated Water Resources Plan Update

"Thinking in terms of tomorrow"

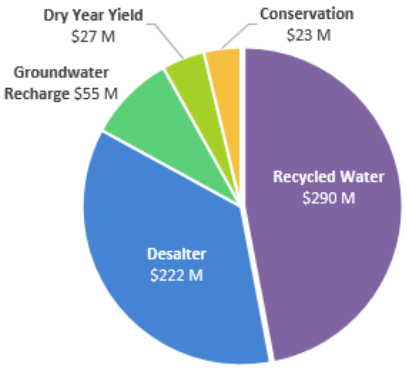
Inland Empire Utilities Agency
A MUNICIPAL WATER DISTRICT

August, 2015

2015 Regional Water Portfolio



Regional Accomplishments in the Chino Basin since 2000



- Regional/local investment: $617 M
- Grants received: $258 M
- Increased local water by 80,000 acre-feet (AF)
- Using SAME amount of water as mid-2000 despite significant population growth (225,000 AFY)
- Reduced dependence on imported water (State Water Project)

Key Water Management Vulnerabilities & Challenges

Groundwater & Stormwater

- Operational safe yield, land subsidence, water quality, loss of natural infiltration

Recycled Water

- Increasing TDS, regional interest in RW exceeds local supplies

Imported Water

- Catastrophic interruption, Rialto pipeline dependence, constraints on MWD supplies due to SWP availability and CRA over allocation and drought

Other:

- Infrastructure redundancy, surface water variability, impact of new energy standards, impact of water use efficiency standards, increased salinity in source water

Overarching IRP Goals

Resilience • Water Efficiency • Sustainability • Cost Effectiveness

Resilience:

- Regional water management flexibility to adapt to climate change and economic growth, and any changes that limit, reduce, or make water supplies unavailable.

Water Efficiency:

- Meet or exceed rules and regulations for reasonable water use.

Sustainability:

- Provide environmental benefits, including energy efficiency, reduced green house gas emissions, and water quality improvements to meet the needs of the present without compromising the ability of future generations meeting their own needs.

Cost-Effectiveness:

- Supply regional water in a cost effective manner and maximize outside funding.

What to expect today

- RAND will explain the portfolio development tool
- Discussion after portfolios built:
  - Thought process of how/why selected projects in portfolio
  - Any other projects want to add
  - Project assumptions

RAND Environment, Energy, and Economic Development Program

IRP Portfolio Building Workshop with RAND

David Groves, Abbie Tingstad, and James Syme

August 26, 2015

Overview of RAND

- Links aspects of universities, consultancies, and think tanks (www.rand.org)
- Started after WWII to connect military planning with R&D decision making
- Has grown in research breadth to include environmental planning, health, education, and other research
- Assisted IEUA (2005-2007) with climate impact assessment funded by National Science Foundation (NSF) to support adaptive long-range planning for water resources
  - for an example, see http://www.rand.org/pubs/documented_briefings/DB550.html

RAND's Contribution to the 2015 IEUA IRP

- Overall objective: Conduct "stress test" of water management portfolio options under alternative future climate conditions, demand projections, and other uncertainties
- RAND Core tasks:
  1) Update IEUA's Water Evaluation and Planning System (WEAP) model of forecasted regional water supplies and demands
  2) Develop separate modeling tool to assist with selection of alternative water management portfolios to test in WEAP model
  3) Compare all portfolio performances under alternative futures to support identification of the best regional "climate adaptive" options for the IRP

Environment, Energy, and Economic Development Program

Why Perform a "Stress Test"?

- Weather is inherently uncertain and subject to a range of variability, which impacts both supply and demand on
- Climate change adds a new layer of uncertainty and is likely to increase the frequency, intensity, and duration of droughts in California
- Subjecting different management portfolios to future climate scenarios provides detailed information about resiliency, which can inform decisions that benefit region

Add More Information to Motivate Problem…

26 August Workshop Objectives

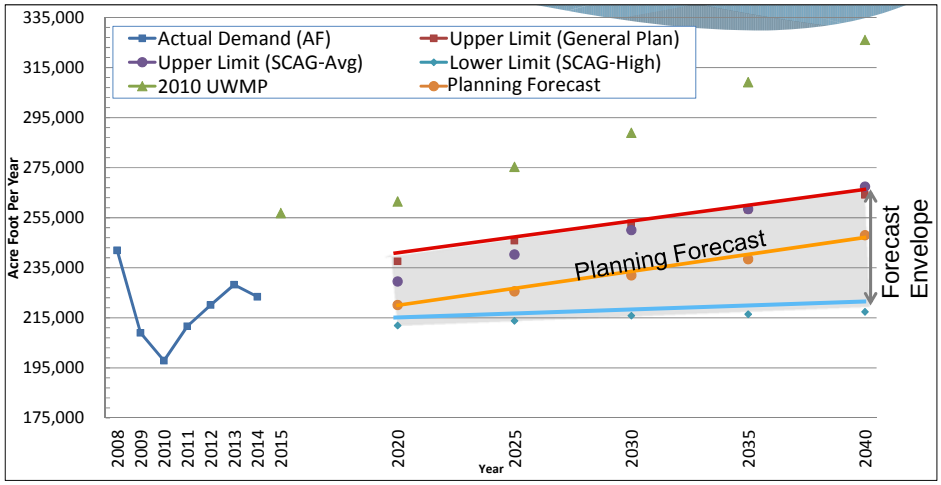
1) Demonstrate use of portfolio development tool
2) Provide opportunity for workshop participants to use the portfolio tool to create draft regional water management portfolios
3) Discuss range of selected management actions and projects that will help meet long-term regional water management goals…and why

Reference: Baseline Supply Assumptions *Without Climate Change*

Supply Type	AF by 2020	Notes/Reference
Chino Groundwater	70,200	Includes SW; limited to IEUA share
Recycled Water GWR	16,900	Recycled Water Program Strategy
Recycled Water Direct Use	25,000	Recycled Water Program Strategy
Chino Desalter	20,000	CDA
Surface & Non-Chino Groundwater	33,700	5 year average
Imported Water	57,300	5 year purchase average
Conservation and WUE	1,000	Water Use Efficiency Business Plan
Total Baseline Supply by 2020	**224,100**	

Source: IEUA

Reference: Demand Projections



Source: IEUA

Workshop Timeline

- 8:30-8:45 Welcome
- 8:45-9:30 Demonstrate portfolio planning tool
- 9:30-10:45 Break-out sessions: Participants create draft water management portfolios (breaks as needed)
- 10:45-12:00 Discuss general results from morning session, thought process, and next step wrap up

Some Ideas for Discussion

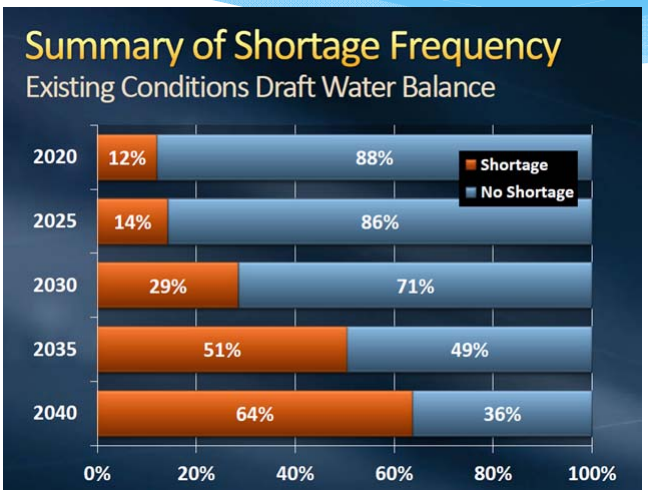
- How do strategies enhance resilience of entire region?
- How do portfolio choices impact different short-term and long-term management goals?
- How do specific projects take advantage of wet years and build resilience in dry years?
- How could projects impact:
  - Each other?
  - Specific agency needs or goals?
- Were there any projects not included in portfolios that would benefit region?
  - Options either weren't available in tool, or weren't included in portfolio in favor of other projects

IRP Baseline Supply

IRP Baseline Supplies

Supply Type	AF in 2015	AF by 2020	AF by 2025	AF by 2030	AF by 2035	Notes/Reference
Chino Groundwater	90,500	91,270	91,270	91,270	91,270	Includes SW; limited to IEUA share
Recycled Water GWR	14,500	16,900	18,700	18,700	18,700	Recycled Water Program Strategy
Recycled Water Direct Use	16,050	24,940	31,300	31,300	31,300	Recycled Water Program Strategy
Chino Desalter	15,000	17,730	17,730	17,730	17,730	CDA
Surface & Non-Chino Groundwater	33,800	33,800	33,800	33,800	33,800	5 year average
Imported Water	65,000	69,750	69,750	69,750	69,750	Purchase Order
Conservation and WUE	1,000	1,000	1,000	1,000	1,000	Water Use Efficiency Business Plan
Total Baseline Supply	**235,850**	**255,390**	**263,550**	**263,550**	**263,550**	

Draft MWD Variability Presented August 2015



How to Set a Portfolio Target?

Baseline Demand % Availability Look Up Table (based on 2025 projection)

Supply Type	100%	90%	80%	70%	60%	50%	40%	30%	20%	10%
Chino Groundwater	91,270	82,143	73,016	63,889	54,762	45,635	36,508	27,381	18,254	9,127
Recycled Water GWR	18,700	16,830	14,960	13,090	11,220	9,350	7,480	5,610	3,740	1,870
Recycled Water Direct Use	31,300	28,170	25,040	21,910	18,780	15,650	12,520	9,390	6,260	3,130
Chino Desalter	17,730	15,957	14,184	12,411	10,638	8,865	7,092	5,319	3,546	1,773
Surface & Non-Chino Groundwater	33,800	30,420	27,040	23,660	20,280	16,900	13,520	10,140	6,760	3,380
Imported Water	69,750	62,775	55,800	48,825	41,850	34,875	27,900	20,925	13,950	6,975
Conservation and WUE	1,000	900	800	700	600	500	400	300	200	100

How to Set a Portfolio Target?

Baseline Demand % Availability Look Up Table (based on 2025 projection)

Supply Type	100%	90%	80%	70%	60%	50%	40%	30%	20%	10%
Chino Groundwater	91,270	82,143	73,016	63,889	54,762	45,635	36,508	27,381	18,254	9,127
Recycled Water GWR	18,700	16,830	14,960	13,090	11,220	9,350	7,480	5,610	3,740	1,870
Recycled Water Direct Use	31,300	28,170	25,040	21,910	18,780	15,650	12,520	9,390	6,260	3,130
Chino Desalter	17,730	15,957	14,184	12,411	10,638	8,865	7,092	5,319	3,546	1,773
Surface & Non-Chino Groundwater	33,800	30,420	27,040	23,660	20,280	16,900	13,520	10,140	6,760	3,380
Imported Water	69,750	62,775	55,800	48,825	41,850	34,875	27,900	20,925	13,950	6,975
Conservation and WUE	1,000	900	800	700	600	500	400	300	200	100

Supply Type	AF Nearterm	AF long term	Notes/Reference
Chino Groundwater			
Recycled Water GWR			
Recycled Water Direct Use			
Chino Desalter			
Surface & Non-Chino Groundwater			
Imported Water			
Conservation and WUE			
Total			
2040 Demand		258,245	
Additional Supply Portfolio Target			

Supply Type	AF Nearterm	AF long term	Notes/Reference
Chino Groundwater		63,889	
Recycled Water GWR		18,700	
Recycled Water Direct Use		25,040	
Chino Desalter		17,730	
Surface & Non-Chino Groundwater		23,660	
Imported Water		48,825	
Conservation and WUE		1,000	
Total	*	**198,844**	*nearterm set at 10% of 2040 demand
2040 Demand		258,245	
Additional Supply Portfolio Target	**26,000**	**59,401**	

Attachment 2

Integrated Resources Plan

Technical Workgroup Meeting
Oct 13, 2015

Meeting Overview

- Recap
  - IRP Purpose & Goals
  - Baseline supplies forecast
  - Baseline demand recap
  - Climate projection impact on baseline supplies recap
- Results of test portfolio strategies
- Next Steps

IRP Recap

Integrated Water Resources Plan

Purpose:

To evaluate the resiliency of the IEUA service area's water resources over the next 25 years and evaluate different strategies for ensuring successful sustainable management and reliability of the region's water resources.

Deliverable:

Recommend regional water supply strategies and identification of preferred water supplies to develop a PEIR and pursue grant opportunities.

Overarching IRP Goals

Resilience • Water Efficiency • Sustainability • Cost Effectiveness

Resilience:

- Regional water management flexibility to adapt to climate change and economic growth, and any changes that limit, reduce, or make water supplies unavailable.

Water Efficiency:

- Meet or exceed rules and regulations for reasonable water use.

Sustainability:

- Provide environmental benefits, including energy efficiency, reduced green house gas emissions, and water quality improvements to meet the needs of the present without compromising the ability of future generations meeting their own needs.

Cost-Effectiveness:

- Supply regional water in a cost effective manner and maximize outside funding.

Integrated Water Resources Plan

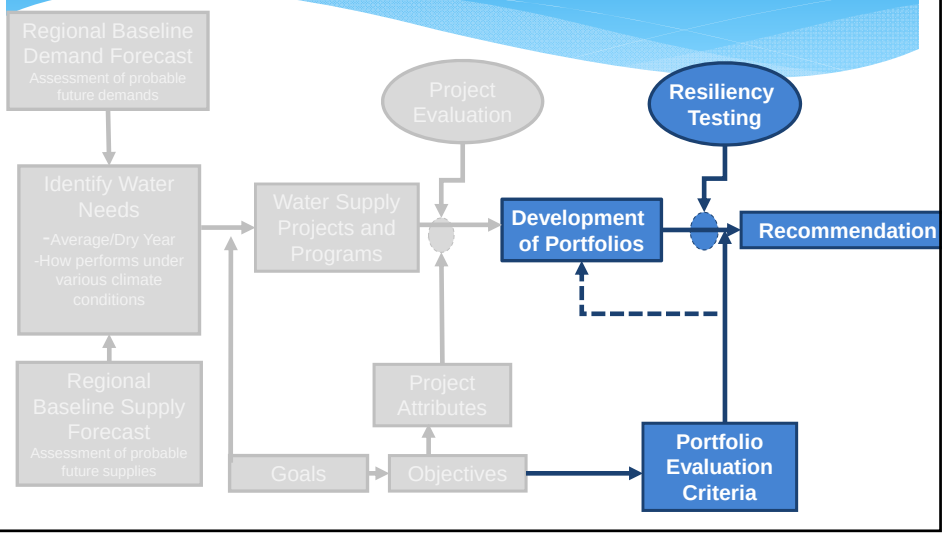
Phase 1 - Identification and Vision of IRP:

- 2040 demand forecast
- Climate change modeling of water supplies
- Resiliency testing of resource strategies
- Regional resources strategies development

Phase 2 - Implementation and CIP:

- Disaggregation of regional demand and supplies
- Capital project scope, costs, and prioritization
- Implementation schedule development

IRP Process Overview



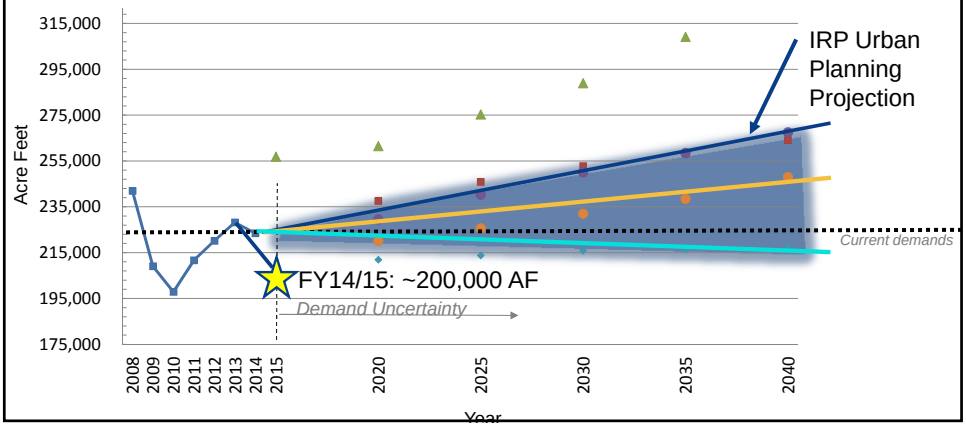
Regional Baseline Supply Forecast

Supply Type	2015 (AF)	2020 (AF)	2040 (AF)
Chino Groundwater	90,500	91,300	91,300
Stormwater(1)	0	6,400	6,400
Recycled Water(2)			
GWR	14,500	16,900	18,700
Direct Use	16,050	25,000	29,000
SAR Obligation	17,000	17,000	17,000
Chino Desalter	15,000	17,700	17,700
Local Surface	22,100	22,100	22,100
Non-Chino Groundwater	11,600	11,600	11,600
Imported Water	65,000	69,750	69,750
Conservation and WUE(3)	1,000	1,000	1,000
Total Baseline Supply	**251,750**	**277,750**	**283,550**

(1) Per 2013 RMPU Table 8-2c. Assuming projects completed by Year 2020.
(2) Does not include Ag deliveries.
(3) Not included in Total Baseline Supply as this quantity of savings is already included in the demand projection.

Regional **Urban** Demand Projection

High= new development continues at current levels of density and efficiency
Medium= new development is more efficient indoor, outdoor landscape with water efficient plants
Low= new development is dense, highly efficient, low water use plants, less outdoor landscaping

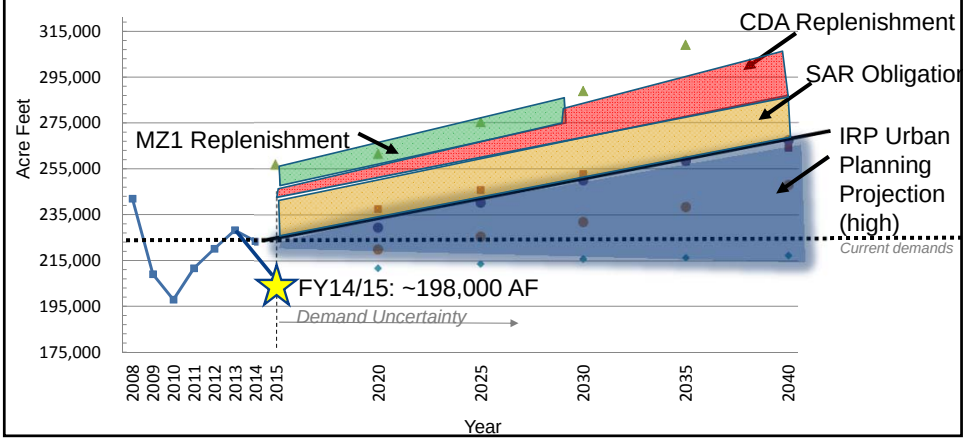


Regional Baseline Demand Forecast

Demand Type	2015 (AF)	2020 (AF)	2040 (AF)
Urban Demand (M&I)	225,000	230,000	267,000
SAR Obligation	17,000	17,000	17,000
MZ1 Supplemental Recharge(1)	6,500	6,500	0
Chino Desalter Replenishment(2)	1,145	2,290	11,035
Total Regional Demand	**249,645**	**255,790**	**295,035**

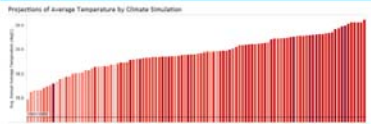
(1) To Year 2030.
(2) Per Exhibit C. IEUA share assumed to be approximately 57% of total replenishment requirement.

Total Regional Demand Projection

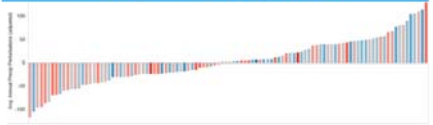


Regional impacts from climate change modeling include…

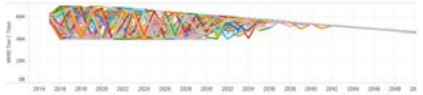
Temperature increases from 67.1-70.5° F



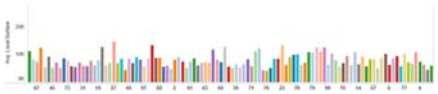
Precipitation is highly variable



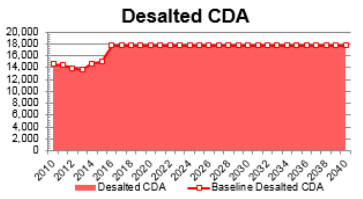
SWP Imported Water from MWD Declines

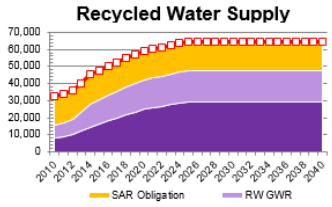


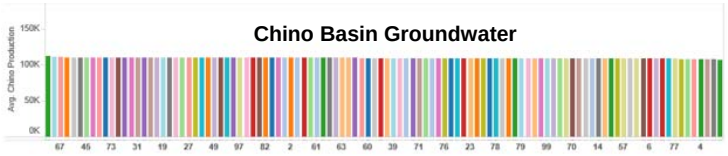
Local surface water varies w. precipitation



Supplies not impacted greatly by climate change are…

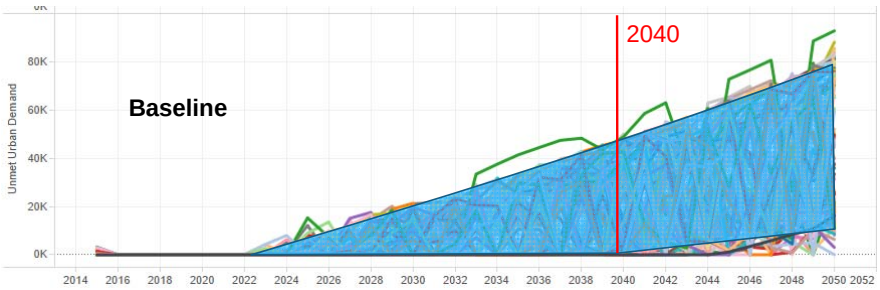






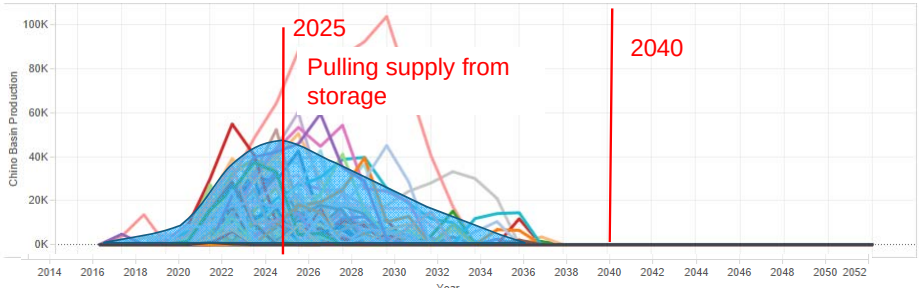
Baseline supply shortfall of up to 60,000 AF by 2040

* Unmet demand = shortfall of supply available to meeting the demand

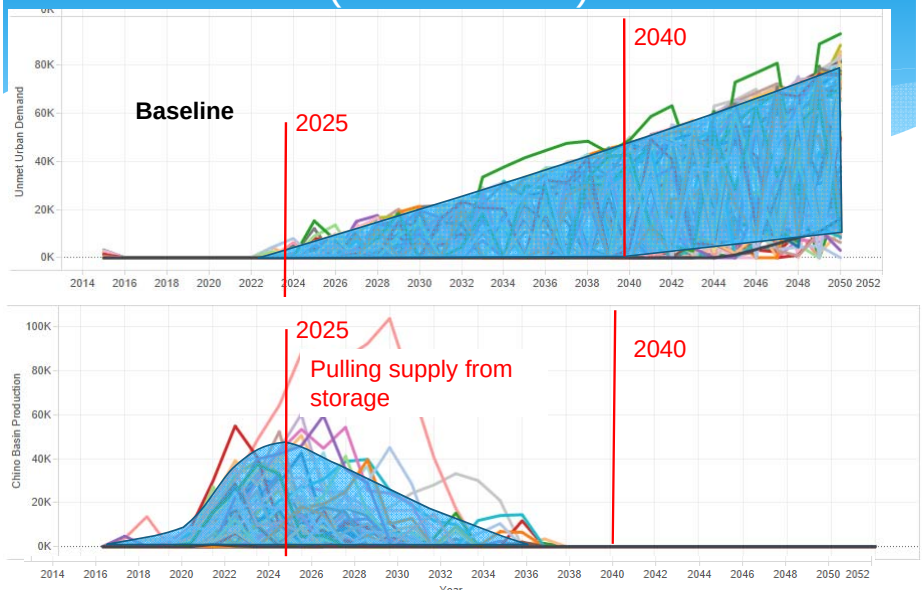


Baseline supply water balance (stored water)

- Surplus supply put in storage for future needs.
- By ~2025 we start to withdraw from storage to meet demands.



Baseline supply water balance (stored water)



What types of water supply strategies were we interested in?

Recap from previous discussions

- Utilize existing groundwater stored in chino basin to help offset future needs
- Explore conservation
- Pursue external RW supplies to help meet regional needs
- Maximize existing facilities when available
- Supplemental water supply to allow Chino Basin production to flex on/off as needed for reliability
- Take advantage of imported water when available

8 Test Water Supply Strategies based on feedback

Test Strategies

* Each strategy will be used to test a combination of different water supplies for the IRP
  - Strategy 1: GW focus w. use of prior stored GW
  - Strategy 2A: Max RW and local supply projects, external RW, device driven WUE
  - Strategy 2B: 2A + supplemental water
  - Strategy 3A: High WUE, local & external RW
  - Strategy 3B: 3A + supplemental water
  - Strategy 4: Ontario – supplemental water + RW
  - Strategy 5A: October 6th workshop strategy-IW
  - Strategy 5B: 5A + RW

Test Strategies

- Common themes among strategies:
  - Maximize recycled water reuse with regional plus external
  - Additional conservation and WUE
  - Maximize groundwater recharge using supplemental water to sustain storage and production
  - Utilize imported water when available

Strategy 1: Maximize Chino basin including prior stored groundwater

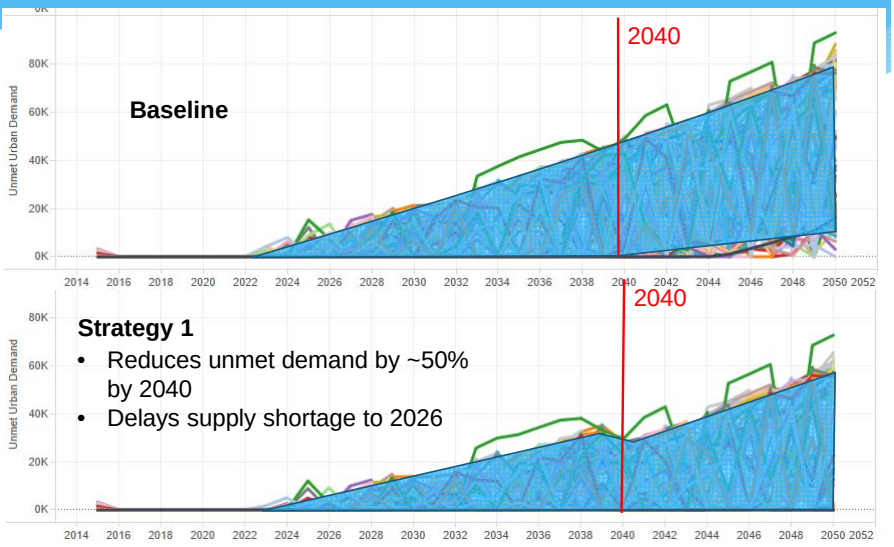
Supply Type	Baseline	1
Chino Groundwater	91,300	8,400
Stormwater	6,400	
Recycled Water		
Locally Developed(1)	64,700	
External Supplies		
Chino Desalter	17,700	
Local Surface	22,100	
Non-Chino Groundwater	11,600	
Imported Water		
MWD	69,750	
Other		
WUE (2)	1,000	
add'l supplies subtotal		8,400
Total Supply	**283,550**	**291,950**

Notes:

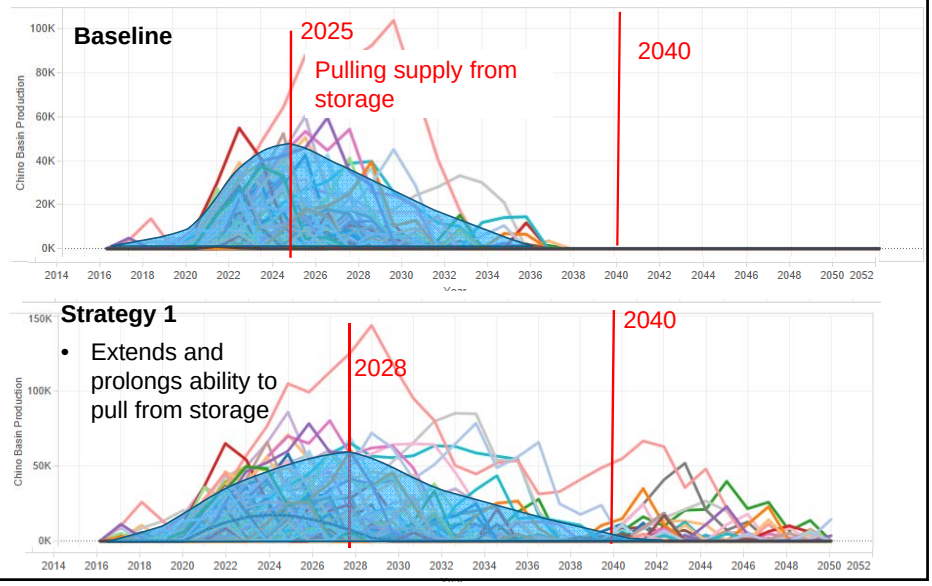
(1) Baseline Supply of 18,700 GWR + 29,000 Direct + 17,000 SAR, or total of 64,700 AFY, based on Agency TYCIP and not total available wastewater supply. Estimated total available local RW supply by 2040 to be 85,550 AFY based on 2015 WWFMPU flow monitoring.

(2) Baseline WUE of 1,000 AFY already included in the Urban Demand forecast. Therefore, not included in Supply Table to avoid double counting. Only new WUE in addition to Baseline to be counted in Total Supply.

Strategy 1: Maximize Chino basin including prior stored groundwater



Strategy 1: Maximize Chino Basin Including Prior Stored GW Stored Water Balance



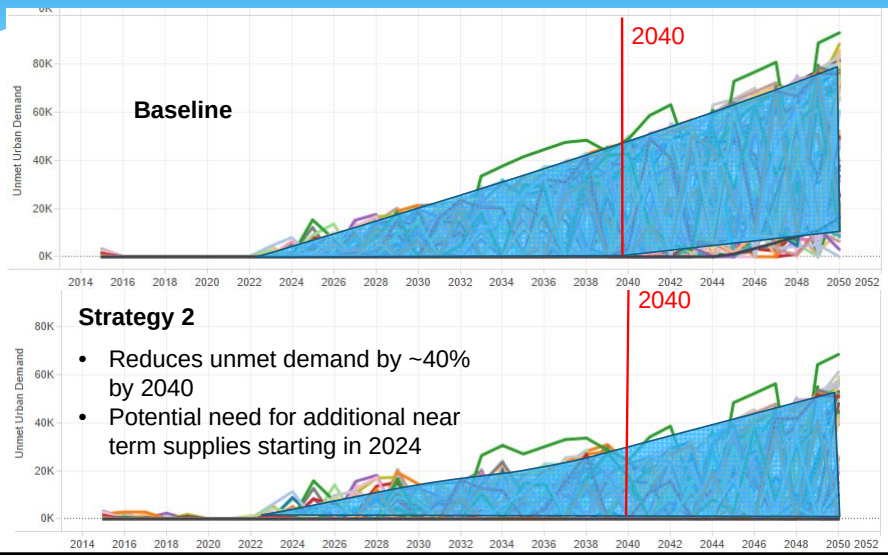
Strategy 2A: Max RW and Local Supply Projects, External RW, Device WUE

Supply Type	Baseline	2A	2B
Chino Groundwater	91,300		
Stormwater	6,400		
Recycled Water			
Locally Developed(1)	64,700	17,000	17,000
External Supplies		10,500	10,500
Chino Desalter	17,700		
Local Surface	22,100		
Non-Chino Groundwater	11,600		
Imported Water			
MWD	69,750		7,850
Other			4,900
WUE (2)	1,000	5,000	5,000
add'l supplies subtotal		32,500	45,250
Total Supply	**283,550**	**316,050**	**328,800**

Notes:

(1) Baseline Supply of 18,700 GWR + 29,000 Direct + 17,000 SAR, or total of 64,700 AFY, based on Agency TYCIP and not total available wastewater supply. Estimated total available local RW supply by 2040 to be 85,550 AFY based on 2015 WWFMPU flow monitoring.
(2) Baseline WUE of 1,000 AFY already included in the Urban Demand forecast. Therefore, not included in Supply Table to avoid double counting. Only new WUE in addition to Baseline to be counted in Total Supply.

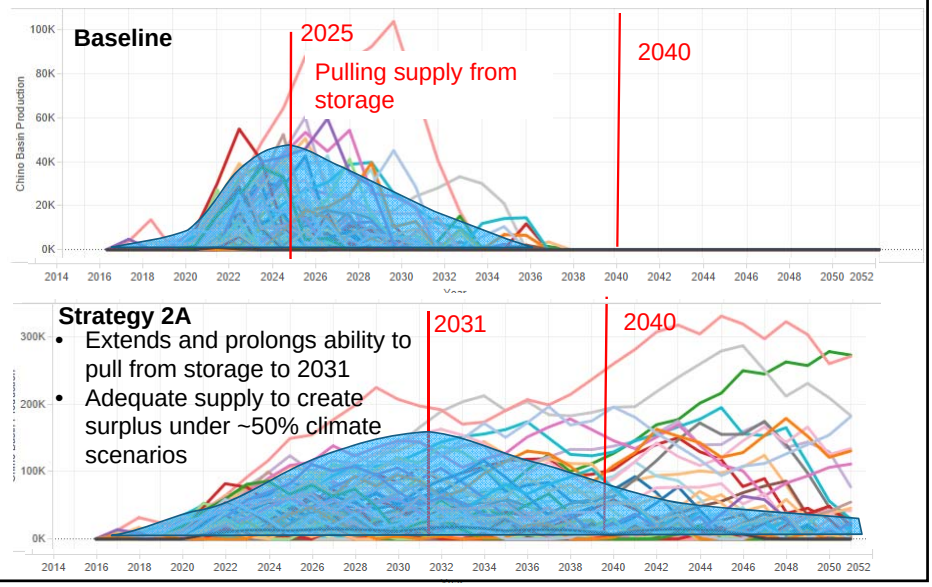
Strategy 2A: Max RW and Local Supply Projects, External RW, Device WUE



- Reduces unmet demand by ~40% by 2040
- Potential need for additional near term supplies starting in 2024

Strategy 2A: Max RW and Local Supply Projects, External RW, Device WUE

Stored Water Balance



Strategy 2B: 2A + Supplemental Water

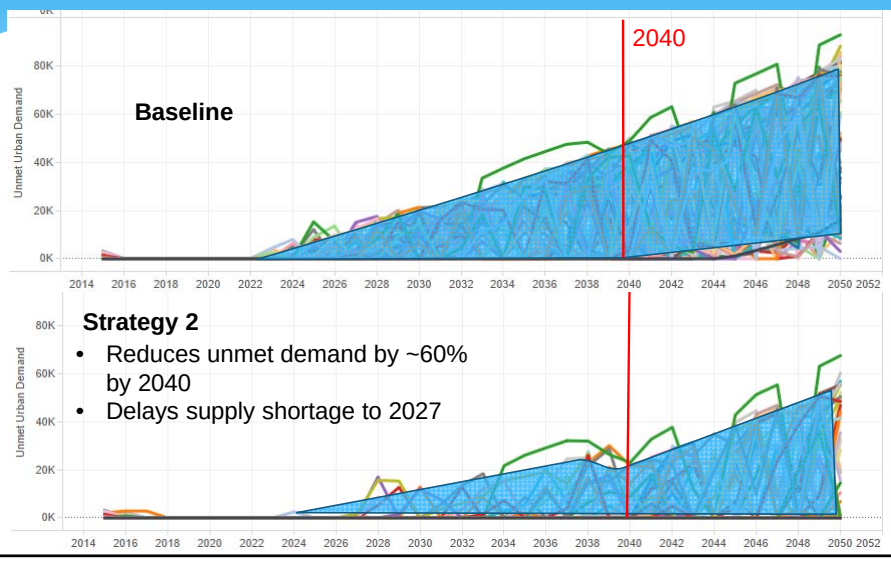
Supply Type	Baseline	2A	2B
Chino Groundwater	91,300		
Stormwater	6,400		
Recycled Water			
Locally Developed(1)	64,700	17,000	17,000
External Supplies		10,500	10,500
Chino Desalter	17,700		
Local Surface	22,100		
Non-Chino Groundwater	11,600		
Imported Water			
MWD	69,750		7,850
Other			4,900
WUE (2)	1,000	5,000	5,000
add'l supplies subtotal		32,500	45,250
Total Supply	**283,550**	**316,050**	**328,800**

Notes:

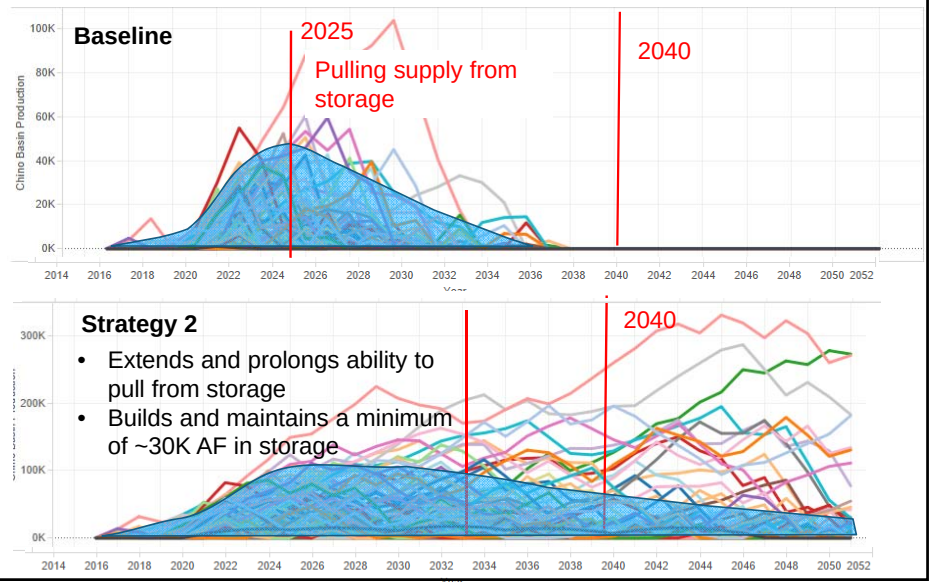
(1) Baseline Supply of 18,700 GWR + 29,000 Direct + 17,000 SAR, or total of 64,700 AFY, based on Agency TYCIP and not total available wastewater supply. Estimated total available local RW supply by 2040 to be 85,550 AFY based on 2015 WWFMPU flow monitoring.

(2) Baseline WUE of 1,000 AFY already included in the Urban Demand forecast. Therefore, not included in Supply Table to avoid double counting. Only new WUE in addition to Baseline to be counted in Total Supply.

Strategy 2B: 2A + Supplemental Water



Strategy 2B: 2A + Supplemental Water
Stored Water Balance



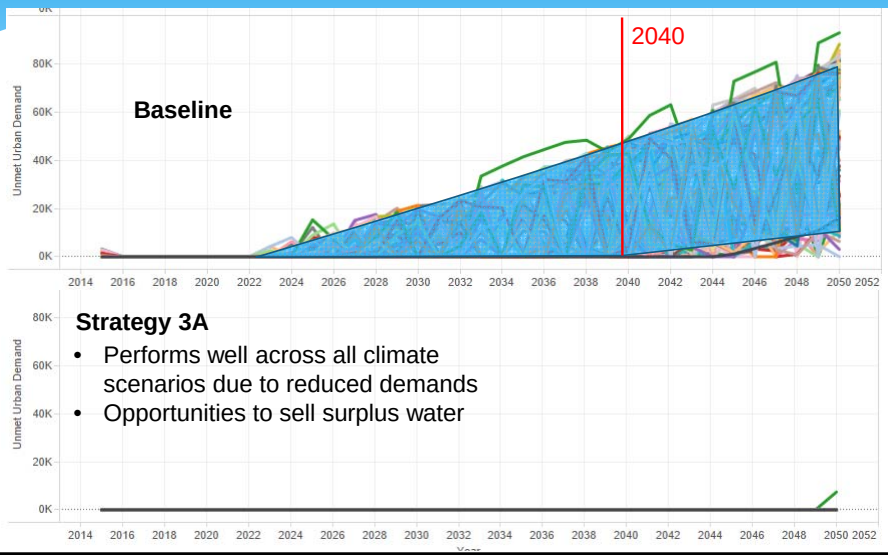
Strategy 3A:High WUE, Local & External RW

Supply Type	Baseline	3A	3B
Chino Groundwater	91,300		
Stormwater	6,400		
Recycled Water			
Locally Developed(1)	64,700	17,000	17,000
External Supplies		10,500	10,500
Chino Desalter	17,700		
Local Surface	22,100		
Non-Chino Groundwater	11,600		
Imported Water			
MWD	69,750	667	667
Other			4,900
WUE (2)	1,000	36,700	55,050
add'l supplies subtotal		64,867	88,117
Total Supply	**283,550**	**348,417**	**371,667**

Notes:

(1) Baseline Supply of 18,700 GWR + 29,000 Direct + 17,000 SAR, or total of 64,700 AFY, based on Agency TYCIP and not total available wastewater supply. Estimated total available local RW supply by 2040 to be 85,550 AFY based on 2015 WWFMPU flow monitoring.
(2) Baseline WUE of 1,000 AFY already included in the Urban Demand forecast. Therefore, not included in Supply Table to avoid double counting. Only new WUE in addition to Baseline to be counted in Total Supply.

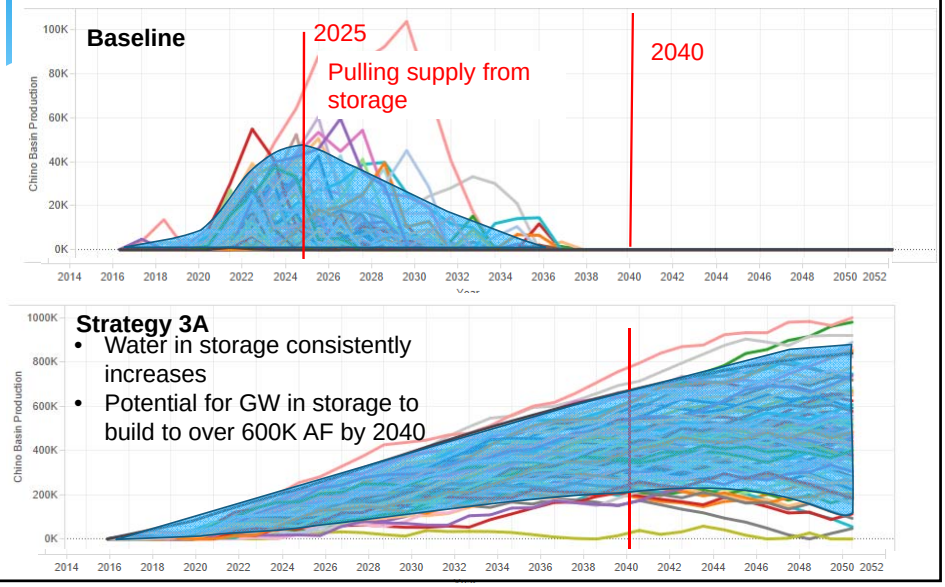
Strategy 3A:High WUE, Local & External RW



Strategy 3A

- Performs well across all climate scenarios due to reduced demands
- Opportunities to sell surplus water

Strategy 3A:High WUE, Local & External RW Stored Water Balance



Strategy 3B: Strategy 3A + Supplemental Water

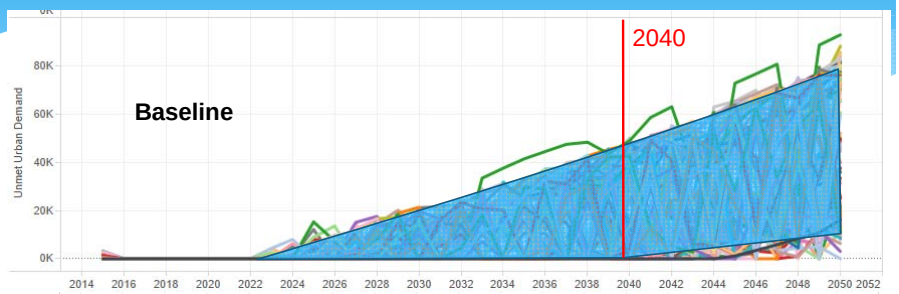
Supply Type	Baseline	3A	3B
Chino Groundwater	91,300		
Stormwater	6,400		
Recycled Water			
Locally Developed(1)	64,700	17,000	17,000
External Supplies		10,500	10,500
Chino Desalter	17,700		
Local Surface	22,100		
Non-Chino Groundwater	11,600		
Imported Water			
MWD	69,750	667	667
Other			4,900
WUE (2)	1,000	36,700	55,050
add'l supplies subtotal		64,867	88,117
Total Supply	**283,550**	**348,417**	**371,667**

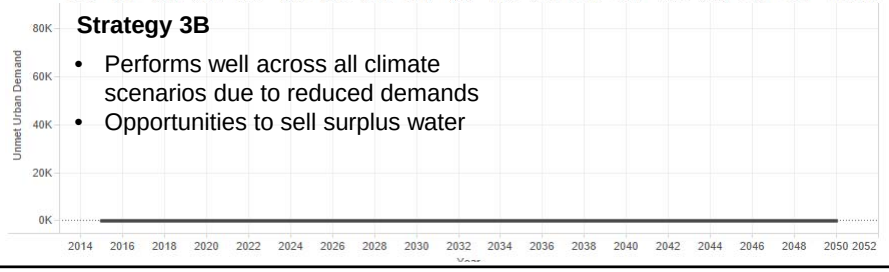
Notes:

(1) Baseline Supply of 18,700 GWR + 29,000 Direct + 17,000 SAR, or total of 64,700 AFY, based on Agency TYCIP and not total available wastewater supply. Estimated total available local RW supply by 2040 to be 85,550 AFY based on 2015 WWFMPU flow monitoring.

(2) Baseline WUE of 1,000 AFY already included in the Urban Demand forecast. Therefore, not included in Supply Table to avoid double counting. Only new WUE in addition to Baseline to be counted in Total Supply.

Strategy 3B: Strategy 3A + Supplemental Water

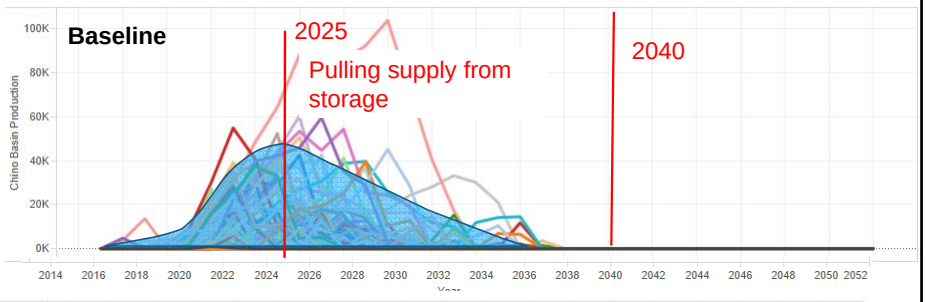


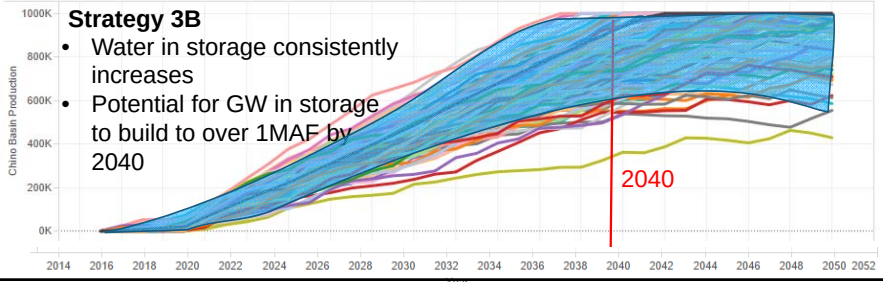


Strategy 3B

- Performs well across all climate scenarios due to reduced demands
- Opportunities to sell surplus water

Strategy 3B: Strategy 3A + Supplemental Water
Stored Water Balance





Strategy 3B

- Water in storage consistently increases
- Potential for GW in storage to build to over 1MAF by 2040

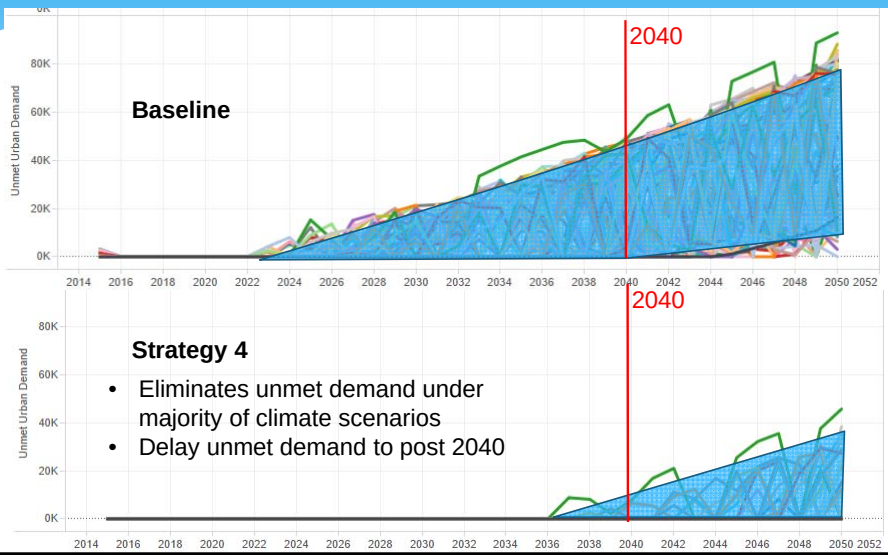
Strategy 4: Ontario- Supplemental Water & RW

Supply Type	Baseline	4
Chino Groundwater	91,300	8,400
Stormwater	6,400	
Recycled Water		
Locally Developed(1)	64,700	20,800
External Supplies		9,000
Chino Desalter	17,700	
Local Surface	22,100	
Non-Chino Groundwater	11,600	2,500
Imported Water		
MWD	69,750	667
Other		6,400
WUE (2)	1,000	13,500
add'l supplies subtotal		61,267
Total Supply	**283,550**	**344,817**

Notes:

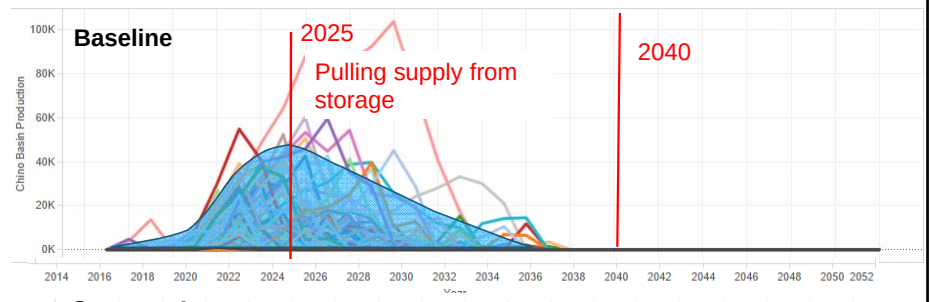
(1) Baseline Supply of 18,700 GWR + 29,000 Direct + 17,000 SAR, or total of 64,700 AFY, based on Agency TYCIP and not total available wastewater supply. Estimated total available local RW supply by 2040 to be 85,550 AFY based on 2015 WWFMPU flow monitoring.
(2) Baseline WUE of 1,000 AFY already included in the Urban Demand forecast. Therefore, not included in Supply Table to avoid double counting. Only new WUE in addition to Baseline to be counted in Total Supply.

Strategy 4: Ontario- Supplemental Water & RW



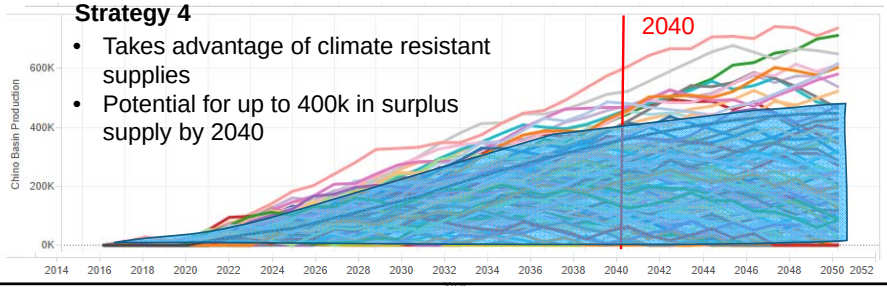
- Eliminates unmet demand under majority of climate scenarios
- Delay unmet demand to post 2040

Strategy 4: Ontario- Supplemental Water & RW Stored Water Balance



Strategy 4

- Takes advantage of climate resistant supplies
- Potential for up to 400k in surplus supply by 2040



Strategy 5A: October Workshop-Imported Water

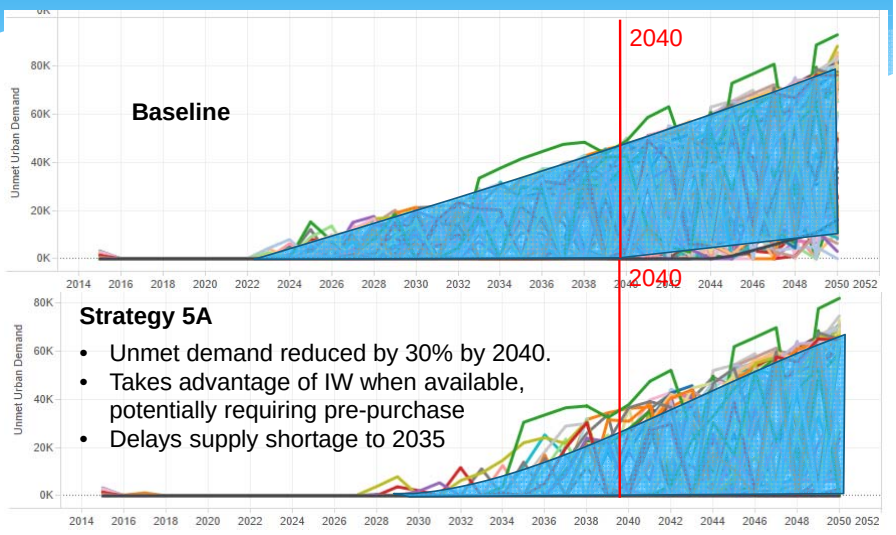
Supply Type	Baseline	5A	5B
Chino Groundwater	91,300		
Stormwater	6,400		
Recycled Water			
Locally Developed(1)	64,700		27,800
External Supplies			
Chino Desalter	17,700		
Local Surface	22,100		
Non-Chino Groundwater	11,600		
Imported Water			
MWD	69,750	23,550	23,550
Other		1,000	1,000
WUE (2)	1,000	18,500	18,500
add'l supplies subtotal		43,050	70,850
Total Supply	**283,550**	**326,600**	**354,400**

Notes:

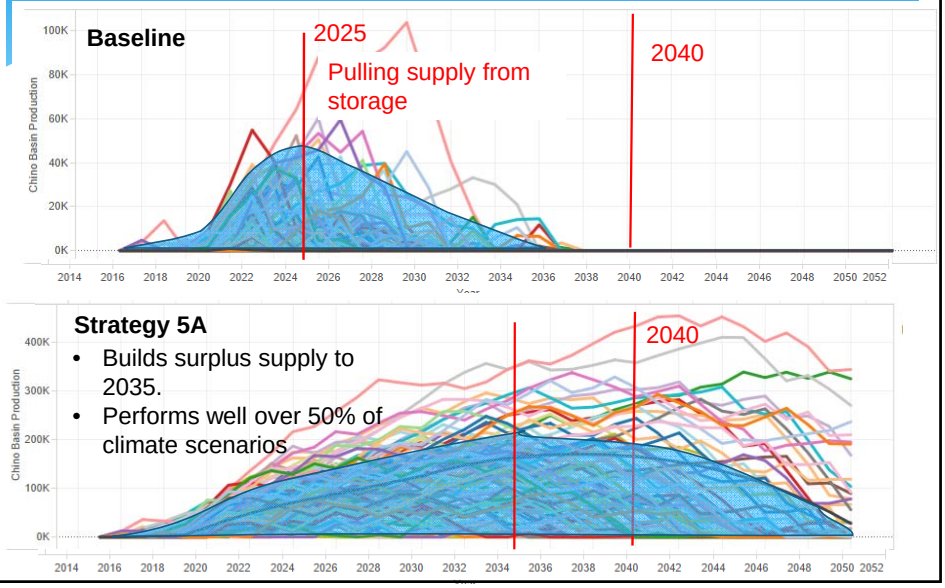
(1) Baseline Supply of 18,700 GWR + 29,000 Direct + 17,000 SAR, or total of 64,700 AFY, based on Agency TYCIP and not total available wastewater supply. Estimated total available local RW supply by 2040 to be 85,550 AFY based on 2015 WWFMPU flow monitoring.

(2) Baseline WUE of 1,000 AFY already included in the Urban Demand forecast. Therefore, not included in Supply Table to avoid double counting. Only new WUE in addition to Baseline to be counted in Total Supply.

Strategy 5A: October Workshop-IW



Strategy 5A: October Workshop-IW Stored Water Balance



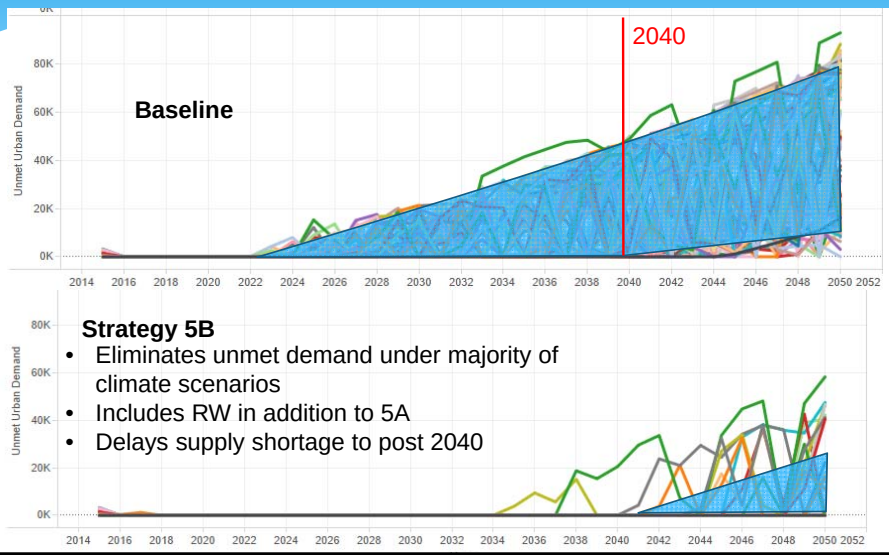
Strategy 5B: Strategy 5A + RW

Supply Type	Baseline	5A	5B
Chino Groundwater	91,300		
Stormwater	6,400		
Recycled Water			
Locally Developed(1)	64,700		27,800
External Supplies			
Chino Desalter	17,700		
Local Surface	22,100		
Non-Chino Groundwater	11,600		
Imported Water			
MWD	69,750	23,550	23,550
Other		1,000	1,000
WUE (2)	1,000	18,500	18,500
add'l supplies subtotal		43,050	70,850
Total Supply	**283,550**	**326,600**	**354,400**

Notes:

(1) Baseline Supply of 18,700 GWR + 29,000 Direct + 17,000 SAR, or total of 64,700 AFY, based on Agency TYCIP and not total available wastewater supply. Estimated total available local RW supply by 2040 to be 85,550 AFY based on 2015 WWFMPU flow monitoring.
(2) Baseline WUE of 1,000 AFY already included in the Urban Demand forecast. Therefore, not included in Supply Table to avoid double counting. Only new WUE in addition to Baseline to be counted in Total Supply.

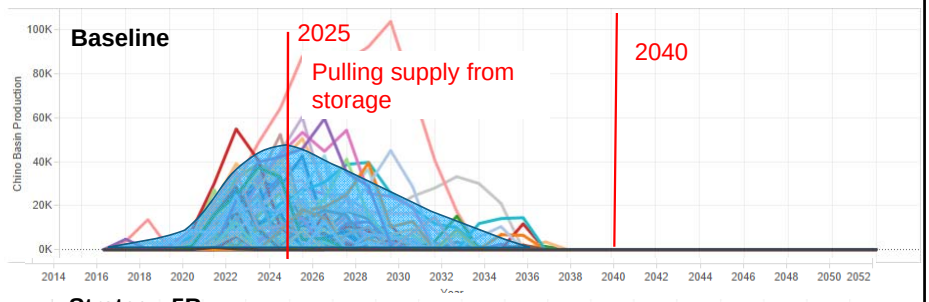
Strategy 5B: Strategy 5A + RW



Strategy 5B

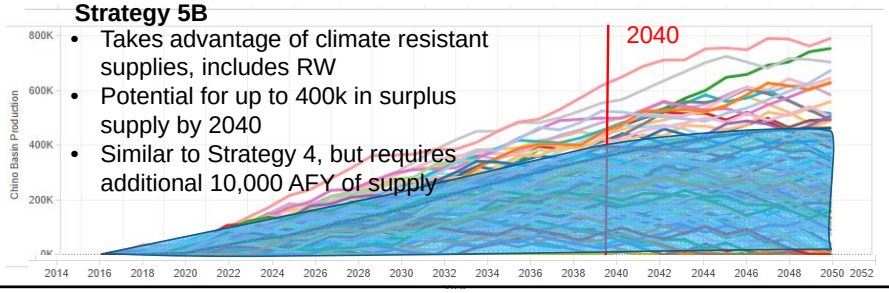
- Eliminates unmet demand under majority of climate scenarios
- Includes RW in addition to 5A
- Delays supply shortage to post 2040

Strategy 5B: Strategy 5A + RW Stored Water Balance



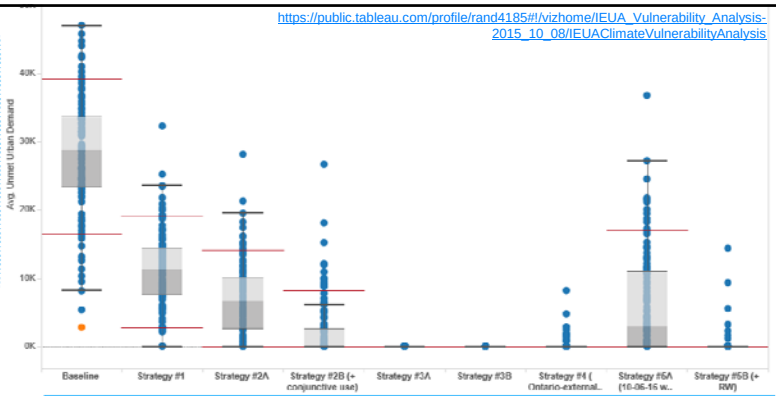
Strategy 5B

- Takes advantage of climate resistant supplies, includes RW
- Potential for up to 400k in surplus supply by 2040
- Similar to Strategy 4, but requires additional 10,000 AFY of supply



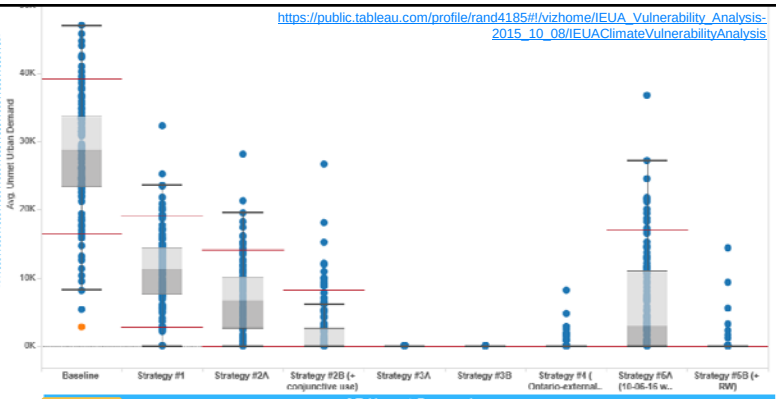
Summary of Results

https://public.tableau.com/profile/rand4185#!/vizhome/IEUA_Vulnerability_Analysis-2015_10_08/IEUAClimateVulnerabilityAnalysis



% of Model Runs in Range	AF Unmet Demand								
	Baseline	Strategy 1	Strategy 2A	Strategy 2B	Strategy 3A	Strategy 3B	Strategy 4	Strategy 5A	Strategy 5B
Lower Quartile (25%)	23,300	7,500	2,500	demands met	demands met	demands met	demands met	demands met	demands met
Median (50%)	28,800	11,200	6,600	demands met	demands met	demands met	demands met	2,900	demands met
Upper quartile (75%)	33,600	14,400	10,000	2,500	demands met	demands met	demands met	11,000	demands met
Outlier (90%)	47,000	23,600	19,600	6,200	demands met	demands met	demands met	27,200	demands met
Highest Outlier (100%)	56,300	32,300	28,200	26,700	demands met	demands met	8,200	36,800	14,400

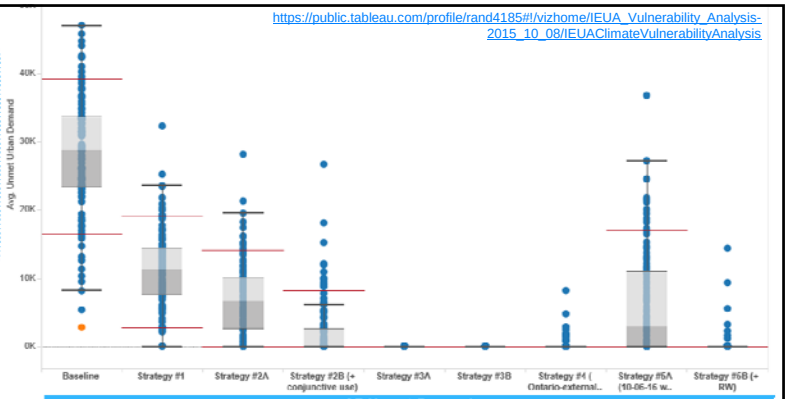
https://public.tableau.com/profile/rand4185#!/vizhome/IEUA_Vulnerability_Analysis-2015_10_08/IEUAClimateVulnerabilityAnalysis



% of Model Runs in Range	AF Unmet Demand								
	Baseline	Strategy 1	Strategy 2A	Strategy 2B	Strategy 3A	Strategy 3B	Strategy 4	Strategy 5A	Strategy 5B
Lower Quartile (25%)	23,300								
Median (50%)	28,800								
Upper quartile (75%)	33,600								
Outlier (90%)	47,000								
Highest Outlier (100%)	56,300								

Because of past investments in GWR and RW, baseline supplies out to 2040 have a shortfall of ~34,000 AF 75% of the time

https://public.tableau.com/profile/rand4185#!/vizhome/IEUA_Vulnerability_Analysis-2015_10_08/IEUAClimateVulnerabilityAnalysis

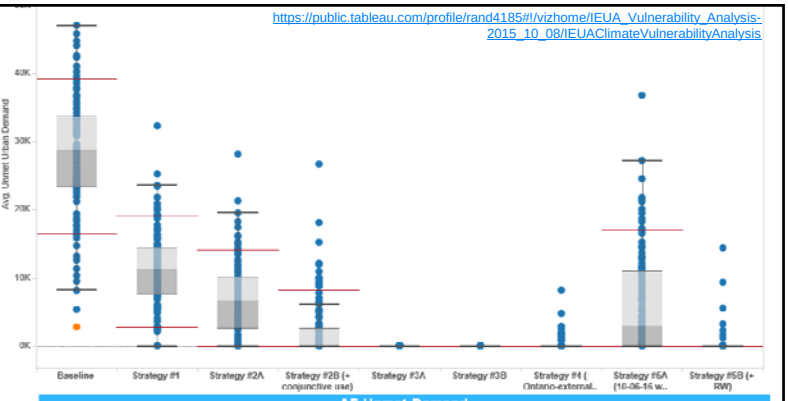


AF Unmet Demand

% of Model Runs in Range	Baseline	Strategy 1	Strategy 2A	Strategy 2B	Strategy 3A	Strategy 3B	Strategy 4	Strategy 5A	Strategy 5B
Lower Quartile (25%)	23,300	7,500	2,500	demands met	demands met	demands met	demands met	demands met	demands me
Median (50%)	28,800	11,200	6,600	demands met	demands met	demands met	demands met	2,900	demands me
					demands met	demands met	demands met	11,000	demands me
					demands met	demands met	demands met	27,200	demands me
Highest Outlier (100%)	56,300	32,300	28,200	26,700	demands met	demands met	8,200	36,800	14,400

Conservation and demand management >13,500 AF increase reliability & resiliency

https://public.tableau.com/profile/rand4185#!/vizhome/IEUA_Vulnerability_Analysis-2015_10_08/IEUAClimateVulnerabilityAnalysis



AF Unmet Demand

% of Model Runs in Range	Baseline	Strategy 1	Strategy 2A	Strategy 2B	Strategy 3A	Strategy 3B	Strategy 4	Strategy 5A	Strategy 5B
Lower Quartile (25%)	23,300	7,500	2,500	demands met	demands met	demands met	demands me	demands me	demands met
			6,600	demands met	demands met	demands met	demands me	2,900	demands met
			10,000	2,500	demands met	demands met	demands me	11,000	demands met
Outlier (90%)	47,000	23,600	19,600	6,200	demands met	demands met	demands me	27,200	demands met
Highest Outlier (100%)	56,300	32,300	28,200	26,700	demands met	demands met	8,200	36,800	14,400

Supplemental water & RW projects increase reliability & resiliency

IRP "Lessons Learned" Summary

- 2040 Regional demand by 2040 is ~300,000 AF
- Baseline Supplies by 2040 are ~280,000AF
- Climate scenarios indicate:
  - Temperature will increase up to 3.4 ° F
  - Precipitation will be highly variable (no clear trend)
- Supplies impacted by climate:
  - MWD imported water supplies from the State Water Project
  - Local surface water (Cucamonga Creek, San Antonio Channel etc)
  - Stormwater
- Chino Basin groundwater levels are slightly impacted by climate
- Recycled water and conservation are not impacted by climate

IRP "Lessons Learned" Summary

- Because of past investments in GWR and RW, baseline supplies out to 2040 have a shortfall ~34,000 AF 75% of the time
- Conservation and demand management >13,500 AF increase reliability & resiliency
  - Appropriate level of WUE will be needed to reliably meet existing and future growth in urban demand
- Supplemental water & recycled water projects increase reliability & resiliency
  - Recycled water is climate resilient
  - Supplemental water projects will require external agreements

IRP "Lessons Learned" Summary

- Increasing the water stored in the groundwater basin increases resiliency
  - Stored groundwater mitigates abnormal or catastrophic events
  - Maximize supplemental water supply to sustain groundwater storage and production
  - Maximize purchases of IW for GWR when available

Next Steps

- Tech IRP to review draft Nov 4th Policy PPT: October 21st
- Joint Policy & Board Meeting: Nov 4th
- Write Draft Document: November-January
- Review Draft Document: January-February
- Discussions about Phase 2: March

Timeline

June-August
- ✓ Regional baseline demand forecast
- ✓ Regional baseline supplies forecast
- ✓ Identify overarching IRP goals & identify supply/demand management projects
- ✓ Screen projects by attributes

September-October
- ✓ RAND Corporation performs climate change "stress test" on baseline supplies/demands
- ❑ Develop regional supply portfolios
- ❑ RAND performs climate change "stress test" on regional portfolio scenarios
- ❑ Analyze regional portfolios to identify key tradeoffs among the portfolios

November
- ❑ Identify recommended management strategies to 2040 in five year increments
- ❑ Identify recommended adaptive management triggers
- ❑ Present draft IRP recommendations and future planning policy principles

Winter- Spring 2016
- ❑ Draft Report for Phase 1
- ❑ Detailed analysis of water supply planning
- ❑ Integration of city and member agency land use data to econometric demand projection
- ❑ Disaggregation of demand forecast projections by each city/member agency

Attachment 3

ID #	Strategy 1	Strategy 2A	Strategy 2B	Strategy 3A	Strategy 3B	Strategy 4	Strategy 5A	Strategy 5B
1	x	x	x					
2	x							
5	x	x	x					
6	x							
9		x	x			x		x
10						x		
11		x	x					x
12		x	x	x	x			x
13				x	x			
14				x	x			
19		x	x					x
20		x	x					x
21				x	x			
23	x	x	x	x	x			x
24	x	x	x	x	x			x
25	x	x	x	x	x			x
26	x	x	x					x
27		x	x					x
33				x	x			
35			x		x			
36			x		x	x	x	x
38			x		x	x		
39		x	x	x	x			
40					x			
43				x	x	x	x	x
44				x	x			
45					x			
46	x			x	x			
47	x			x	x			
48		x	x					
56						x		
62						x		
66				x	x		x	x
87	x					x		
88	x			x	x			
89			x		x		x	x
90							x	x
91							x	x
95				x	x	x		
96					x			

	Portfolio Theme	Project ID #	Project Name	Description	Category
Strategy 1	groundwater focus w. use of prior stored groundwater (storage accounts)	1	Groundwater Treatment (Rehab)-Increment 1	This project category will rehabilitate an existing groundwater production wells decommissioned due to water quality concerns. It is assumed that additional pumping would be limited by the volume of recharge occurring (over operating safe yield). Increased well operation could supplement annual demands or intermittent to help offset losses in another water supply. Increment 1 will provide up to 5,000 AFY of production.	GW Capacity
		2	Groundwater Treatment (Rehab)-Increment 2	This project category will rehabilitate an existing groundwater production wells decommissioned due to water quality concerns. It is assumed that additional pumping would be limited by the volume of recharge occurring (over operating safe yield). Increased well operation could supplement annual demands or intermittent to help offset losses in another water supply. Increment 1 + 2 will provide up to 10,000 AFY of production.	GW Capacity
		5	Production Wells-Increment 1	With increasing groundwater recharge to the Chino Basin, new production wells may need to be constructed to recover the additional groundwater. It is assumed that additional pumping would be limited by the volume of recharge occurring (over operating safe yield). Well operation could supplement annual demands or intermittent to help offset losses in another water supply. Increment 1 will provide up to 5,000 AFY of production	GW Capacity
		6	Production Wells-Increment 2	With increasing groundwater recharge to the Chino Basin, new production wells may need to be constructed to recover the additional groundwater. It is assumed that additional pumping would be limited by the volume of recharge occurring (over operating safe yield). Well operation could supplement annual demands or intermittent to help offset losses in another water supply. Increment 1+2 will provide up to 10,000 AFY of production	GW Capacity
		23	Existing GWR Basin Improvements beyond RMPU-Increment 1	The 2013 Chino Basin RMPU recommended a set of preferred projects to improve recharge at the existing groundwater spreading basins. This project category represents the next increment of additional groundwater recharge (imported water and/or recycled water) capable at the existing facilities. Increment 1 facilities would increase recharge at existing basins within the Chino Basin by an additional 2,500 AFY.	GWR
		24	Existing GWR Basin Improvements beyond RMPU-Increment 2	The 2013 Chino Basin RMPU recommended a set of preferred projects to improve recharge at the existing groundwater spreading basins. This project category represents the next increment of additional groundwater recharge (imported water and/or recycled water) capable at the existing facilities. Increment 1+2 facilities would increase recharge at existing basins within the Chino Basin by an additional 5,000 AFY.	GWR
		25	Existing GWR Basin Improvements beyond RMPU-Increment 3	The 2013 Chino Basin RMPU recommended a set of preferred projects to improve recharge at the existing groundwater spreading basins. This project category represents the next increment of additional groundwater recharge (imported water and/or recycled water) capable at the existing facilities. Increment 1-3 facilities would increase recharge at existing basins within the Chino Basin by an additional 10,000 AFY.	GWR
		26	Existing GWR Basin Improvements beyond RMPU-Increment 4	The 2013 Chino Basin RMPU recommended a set of preferred projects to improve recharge at the existing groundwater spreading basins. This project category represents the next increment of additional groundwater recharge (imported water and/or recycled water) capable at the existing facilities. Increment 1-4 facilities would increase recharge at existing basins within the Chino Basin by an additional 15,000 AFY.	GWR

		46	WUE- RW Demand Management-Increment 1	Implement demand management devices and programs for direct recycled water customers. Does not generate additional supply, aids in managing the supply during peak demand. Increment 1 would provide 2,500 AFY of demand management, this supply could be used for increasing direct use demands, groundwater recharge or other reuse strategy.	GWR
		47	WUE- RW Demand Management-Increment 2	Implement demand management devices and programs for direct recycled water customers. Does not generate additional supply, aids in managing the supply during peak demand. Increment 1+2 would provide 5,000 AFY of demand management, this supply could be used for increasing direct use demands, groundwater recharge or other reuse strategy.	GWR
		87	Prior Stored Chino Groundwater	This category will allow supply to be taken from groundwater stored in the Chino Basin, pre 2014. It is estimated that approximately 400,000 AF of stored groundwater is available, of which 280,000 AF is made available for IEUA member agencies. This supply category will be managed on a case by case basis as selected into the Regional supply portfolios. The supply will be limited, but can be used annually or intermittent as needed.	CB GW
		88	Maximize Local Surface Water	This category of projects will construct facilities needed to capture additional local surface water. Projects to be defined by IEUA's member agencies. For example, increase surface flows off Lytle Creek in wet years. Assume benefit 3 in 5 years	Local Surface
	Portfolio Theme	**Project ID #**	**Project Name**	**Description**	**Category**
		1	Groundwater Treatment (Rehab)-Increment 1	This project category will rehabilitate an existing groundwater production wells decommissioned due to water quality concerns. It is assumed that additional pumping would be limited by the volume of recharge occurring (over operating safe yield). Increased well operation could supplement annual demands or intermittent to help offset losses in another water supply. Increment 1 will provide up to 5,000 AFY of production.	GW Capacity
		5	Production Wells-Increment 1	With increasing groundwater recharge to the Chino Basin, new production wells may need to be constructed to recover the additional groundwater. It is assumed that additional pumping would be limited by the volume of recharge occurring (over operating safe yield). Well operation could supplement annual demands or intermittent to help offset losses in another water supply. Increment 1 will provide up to 5,000 AFY of production	GW Capacity
		9	WRCRWA RW Intertie	The Western Riverside County Regional Wastewater Authority (WRCRWA) Plant intertie would allow for the delivery of recycled water from the WRCRWA Plant to be used in the IEUA southern service area. This would also allow additional recycled water to be delivered into the northern service area groundwater recharge basins by reducing the demand from the RP-1 930 pressure zone pump station. Intertie would occur within the 800/930 Pressure Zones.	Outside RW
		11	Pomona RW Exchange/Transfer	The City of Pomona does not currently use all of the treated effluent from the Pomona WRP. One concept would involve partnering to develop and expand their recycled water facilities in exchange for an agreed amount of their Chino Basin groundwater right. Could include other supply transfer agreement such as reclaimable waste and/or groundwater.	Outside RW
		12	RP-1 RW Injection-Increment 1	This project would construct an advanced water filtration (e.g. process treatment that combines micro or ultrafiltration) facility at RP-1 to further treat tertiary effluent to allow the water to be injected directly into Chino Basin. The sizing of the facility and the volume to be produced will be determined as part of the portfolio development process. Increment 1 facility would be sized for 2,500 AFY.	GWR

Strategy 2A	maximize regional recycled water and local supply projects, minimal WUE (device focus)	19	RW Direct Use Expansion-Increment 1	IEUA developed a new Recycled Water Program Strategy concurrent with the IRP. This project category will be used to determine the potential interest in expanding the direct use system beyond the Agency's Ten Year CIP. Includes the reuse of regional wastewater supply, approximately 83,000 AFY by 2035 and potential recycled water interties. Increment 1 facilities would increase direct use beyond baseline supply by 5,000 AFY.	Direct RW
		20	RW Direct Use Expansion-Increment 2	IEUA developed a new Recycled Water Program Strategy concurrent with the IRP. This project category will be used to determine the potential interest in expanding the direct use system beyond the Agency's Ten Year CIP. Includes the reuse of regional wastewater supply, approximately 83,000 AFY by 2035 and potential recycled water interties. Increment 1+2 facilities would increase direct use beyond baseline supply by 10,000 AFY.	Direct RW
		23	Existing GWR Basin Improvements beyond RMPU-Increment 1	The 2013 Chino Basin RMPU recommended a set of preferred projects to improve recharge at the existing groundwater spreading basins. This project category represents the next increment of additional groundwater recharge (imported water and/or recycled water) capable at the existing facilities. Increment 1 facilities would increase recharge at existing basins within the Chino Basin by an additional 2,500 AFY.	GWR
		24	Existing GWR Basin Improvements beyond RMPU-Increment 2	The 2013 Chino Basin RMPU recommended a set of preferred projects to improve recharge at the existing groundwater spreading basins. This project category represents the next increment of additional groundwater recharge (imported water and/or recycled water) capable at the existing facilities. Increment 1+2 facilities would increase recharge at existing basins within the Chino Basin by an additional 5,000 AFY.	GWR
		25	Existing GWR Basin Improvements beyond RMPU-Increment 3	The 2013 Chino Basin RMPU recommended a set of preferred projects to improve recharge at the existing groundwater spreading basins. This project category represents the next increment of additional groundwater recharge (imported water and/or recycled water) capable at the existing facilities. Increment 1-3 facilities would increase recharge at existing basins within the Chino Basin by an additional 10,000 AFY.	GWR
		26	Existing GWR Basin Improvements beyond RMPU-Increment 4	The 2013 Chino Basin RMPU recommended a set of preferred projects to improve recharge at the existing groundwater spreading basins. This project category represents the next increment of additional groundwater recharge (imported water and/or recycled water) capable at the existing facilities. Increment 1-4 facilities would increase recharge at existing basins within the Chino Basin by an additional 15,000 AFY.	GWR
		27	Construct New GWR Basins-Increment 1	Purchase land to construct new groundwater recharge basins in the service area to capture additional stormwater, recycled water and/or imported water for groundwater recharge. Increment 1 would provide up to an additional 2,450 AFY of recharge capacity, which is approximately one new basin at 350 AF per month for 7 months of operation.	SW Capacity
		39	Expand WUE Devices	Implement additional targeted device related savings to reduce demand beyond current annual water use efficiency savings. Provide incentives and pilot programs to roll out extremely high efficient indoor fixtures and toilets. To be verified with WUEBP.	WUE
		48	Dry Weather Flow Diversions	Capture and treat urban dry weather flow from Chino, Cucamonga and San Sevaine Creek into the Regional Plants. For the purposes of the IRP, a volume of 3,500 AFY was assumed as total available dry weather flow.	Outside RW
	Portfolio Theme	**Project ID #**	**Project Name**	**Description**	**Category**

Strategy 2B	Stragetgy #2A + Conjunctive Use	35	Secure SWP IW transfer outside MWD from Irrigation Districts or Ag Transfers	Imported water supply is solely from MWD via the SWP and is limited by the Agency's purchase order. Other permanent, temporary or seasonally available imported water supplies could be purchased and wheeled into the Chino Basin. The volume of water available varies depending on the source of water and timing. Supplies could be purchased from various Irrigation Districts or secured via Ag Transfer. Assume benefit 1 in 10 years	non MWD IW
		36	SBVMWD IW Transfer	As a SWP contractor, San Bernardino Valley MWD (SBVMWD) has a Table A allocation. This option would involve constructing an intertie between SBVMWD's imported water system. The supply would be temporary or seasonally available and could be purchased and wheeled into the Chino Basin. Assume benefit 1 in 5 years.	non MWD replenishment
		38	Six Basin Groundwater Transfer	This project would explore the idea of developing a water transfer agreement with Six Basins. One concept is to purchase imported water for recharge into Six Basins and get in return equal volume of groundwater underflow plus agreed amount of stormwater. For example, could purchase 10,000 AF of IW for exchange of 10,000 AF of groundwater plus 7,000 AF of stormwater. Assume benefit 1 in 5 years.	non MWD replenishment
		89	Max Tier 1 MWD Imported Water-Increment 1	1 rate is 93,283 AFY or cumulative purchase order maximum of 932,830 AF through December 31, 2024. Supply can be taken directly, in-lieu or for	IW-MWD
	Portfolio Theme	**Project ID #**	**Project Name**	**Description**	**Category**
		12	RP-1 RW Injection-Increment 1	This project would construct an advanced water filtration (e.g. process treatment that combines micro or ultrafiltration) facility at RP-1 to further treat tertiary effluent to allow the water to be injected directly into Chino Basin. The sizing of the facility and the volume to be produced will be determined as part of the portfolio development process. Increment 1 facility would be sized for 2,500 AFY.	GWR
		13	RP-1 RW Injection-Increment 2	This project would construct an advanced water filtration (e.g. process treatment that combines micro or ultrafiltration) facility at RP-1 to further treat tertiary effluent to allow the water to be injected directly into Chino Basin. The sizing of the facility and the volume to be produced will be determined as part of the portfolio development process. Increment 1+2 facility would be sized for 5,000 AFY.	GWR
		14	RP-1 RW Injection-Increment 3	This project would construct an advanced water filtration (e.g. process treatment that combines micro or ultrafiltration) facility at RP-1 to further treat tertiary effluent to allow the water to be injected directly into Chino Basin. The sizing of the facility and the volume to be produced will be determined as part of the portfolio development process. Increment 1-3 facility would be sized for 7,500 AFY.	GWR
		21	RW Direct Use Expansion-Increment 3	IEUA developed a new Recycled Water Program Strategy concurrent with the IRP. This project category will be used to determine the potential interest in expanding the direct use system beyond the Agency's Ten Year CIP. Includes the reuse of regional wastewater supply, approximately 83,000 AFY by 2035 and potential recycled water interties. Increment 1-3 facilities would increase direct use beyond baseline supply by 15,000 AFY.	Direct RW
		23	Existing GWR Basin Improvements beyond RMPU-Increment 1	The 2013 Chino Basin RMPU recommended a set of preferred projects to improve recharge at the existing groundwater spreading basins. This project category represents the next increment of additional groundwater recharge (imported water and/or recycled water) capable at the existing facilities. Increment 1 facilities would increase recharge at existing basins within the Chino Basin by an additional 2,500 AFY.	GWR
		24	Existing GWR Basin Improvements beyond RMPU-Increment 2	The 2013 Chino Basin RMPU recommended a set of preferred projects to improve recharge at the existing groundwater spreading basins. This project category represents the next increment of additional groundwater recharge (imported water and/or recycled water) capable at the existing facilities. Increment 1+2 facilities would increase recharge at existing basins within the Chino Basin by an additional 5,000 AFY.	GWR

Strategy 3A	water use efficiency focus, some conjunctive use and regional recycled water	25	Existing GWR Basin Improvements beyond RMPU-Increment 3	The 2013 Chino Basin RMPU recommended a set of preferred projects to improve recharge at the existing groundwater spreading basins. This project category represents the next increment of additional groundwater recharge (imported water and/or recycled water) capable at the existing facilities. Increment 1-3 facilities would increase recharge at existing basins within the Chino Basin by an additional 10,000 AFY.	GWR
		33	Maximize ASR wells	Construct other aquifer storage and recovery (ASR) wells to increase recharge by 3,500 AFY within the Chino Basin during wet and dry years. Assume benefit 40% of the time (2 in 5 years). Storage to be dependent on supplemental water availability in wet years	GW Capacity
		39	Expand WUE Devices	Implement additional targeted device related savings to reduce demand beyond current annual water use efficiency savings. Provide incentives and pilot programs to roll out extremely high efficient indoor fixtures and toilets. To be verified with WUEBP.	WUE
		43	WUE - Budget Rates-Increment 1	Implement water budget based rates for 2 member agencies (assuming 15% total savings per Agency after 3 years). To be verified with WUEBP. Increment 1 would provide up to 13,350 AFY of savings.	WUE
		44	WUE - Budget Rates-Increment 2	Implement water budget based rates for 2 member agencies (assuming 15% total savings per Agency after 3 years). To be verified with WUEBP. Increment 1 would provide up to 26,700 AFY of savings.	WUE
		46	WUE- RW Demand Management-Increment 1	Implement demand management devices and programs for direct recycled water customers. Does not generate additional supply, aids in managing the supply during peak demand. Increment 1 would provide 2,500 AFY of demand management, this supply could be used for increasing direct use demands, groundwater recharge or other reuse strategy.	GWR
		47	WUE- RW Demand Management-Increment 2	Implement demand management devices and programs for direct recycled water customers. Does not generate additional supply, aids in managing the supply during peak demand. Increment 1+2 would provide 5,000 AFY of demand management, this supply could be used for increasing direct use demands, groundwater recharge or other reuse strategy.	GWR
		66	WUE - Advanced Metering Technologies	Install advanced metering infrastructure (AMI) between retail meters and a utility provider. Will provide real-time data about consumption and allow customers to make informed choices about usage.	WUE
		88	Maximize Local Surface Water	This category of projects will construct facilities needed to capture additional local surface water. Projects to be defined by IEUA's member agencies. For example, increase surface flows off Lytle Creek in wet years. Assume benefit 3 in 5 years	Local Surface
		95	MWD Replenishment or discount wet year water-Increment 1	Maximize replenishment or discount wet year imported water from MWD. Availability pending MWD supply and pricing. Supply can be taken in-lieu or for supplemental recharge. Increment 1 would allow for the purchase of an additional 10,000 AFY. Can be purchased annually or intermittently. Assume benefit after 2 consecutive wet years (assume 1 in 15 years)	MWD Replenishment
	Portfolio Theme	**Project ID #**	**Project Name**	**Description**	**Category**
		35	Secure SWP IW transfer outside MWD	Imported water supply is solely from MWD via the SWP and is limited by the Agency's purchase order. Other permanent, temporary or seasonally available imported water supplies could be purchased and wheeled into the Chino Basin. The volume of water available varies depending on the source of water and timing. Supplies could be purchased from various Irrigation Districts or secured via Ag Transfer. Assume benefit 1 in 10 years	non MWD IW
		36	SBVMWD IW Transfer	As a SWP contractor, San Bernardino Valley MWD (SBVMWD) has a Table A allocation. This option would involve constructing an intertie between SBVMWD's imported water system. The supply would be temporary or seasonally available and could be purchased and wheeled into the Chino Basin. Assume benefit 1 in 5 years.	non MWD replenishment

Strategy 3B	Portfolio #3A + maximize demand management; conjunctive use to replace overdraft/loss	38	Six Basin Water Transfer	This project would explore the idea of developing a water transfer agreement with Six Basins. One concept is to purchase imported water for recharge into Six Basins and get in return equal volume of groundwater underflow plus agreed amount of stormwater. For example, could purchase 10,000 AF of IW for exchange of 10,000 AF of groundwater plus 7,000 AF of stormwater. Assume benefit 1 in 5 years.	non MWD replenishment
		40	WUE - Turf Removal-Increment 1	Implement turf removal and landscape transformational programs to reduce outdoor demand. To be verified with WUEBP. Increment 1 would provide up to 5,000 AFY of savings.	WUE
		45	WUE - Budget Rates-Increment 3	Implement water budget based rates for 2 member agencies (assuming 15% total savings per Agency after 3 years). To be verified with WUEBP. Increment 1 would provide up to 40,050 AFY of savings.	WUE
		96	MWD Replenishment or discount wet year water-Increment 2	Maximize replenishment or discount wet year imported water from MWD. Availability pending MWD supply and pricing. Supply can be taken in-lieu or for supplemental recharge. Increment 1 would allow for the purchase of an additional 10,000 AFY. Can be purchased annually or intermittently. Assume benefit after 2 consecutive wet years (assume 1 in 15 years)	MWD Replenishment
	Portfolio Theme	**Project ID #**	**Project Name**	**Description**	**Category**
Strategy 4	Ontario Test-- conjunctive use focus	9	WRCRWA Intertie	The Western Riverside County Regional Wastewater Authority (WRCRWA) Plant intertie would allow for the delivery of recycled water from the WRCRWA Plant to be used in the IEUA southern service area. This would also allow additional recycled water to be delivered into the northern service area groundwater recharge basins by reducing the demand from the RP-1 930 pressure zone pump station.	Outside RW
		10	Rialto Intertie	The Rialto intertie project would allow for delivery of recycled water from the Rialto WWTP to be used in the IEUA service area. The intertie could occur near the RP-3 groundwater recharge basins. This concept could involve the Inland Valley Pipeline, LLC (IVP) to convey water between Rialto WWTP and IEUA's recycled water distribution system.	Outside RW
		36	SBVMWD IW Transfer	As a SWP contractor, San Bernardino Valley MWD (SBVMWD) has a Table A allocation. This option would involve constructing an intertie between SBVMWD's imported water system. The supply would be temporary or seasonally available and could be purchased and wheeled into the Chino Basin. Assume benefit 1 in 5 years.	non MWD replenishment
		38	Six Basin Groundwater Transfer	This project would explore the idea of developing a water transfer agreement with Six Basins. One concept is to purchase imported water for recharge into Six Basins and get in return equal volume of groundwater underflow plus agreed amount of stormwater. For example, could purchase 10,000 AF of IW for exchange of 10,000 AF of groundwater plus 7,000 AF of stormwater. Assume benefit 1 in 5 years.	non MWD replenishment
		43	WUE - Budget Rates- Increment 1 (2 agencies, 15% savings per agency)	Implement water budget based rates for 2 member agencies (assuming 15% total savings per Agency after 3 years). To be verified with WUEBP. Increment 1 would provide up to 13,350 AFY of savings.	WUE
		56	Water Banking Facility - Increment 1	This project category would invest into the Semitropic Groundwater Storage Bank in Kern County or similar program. The Chino Basin could bank additional purchases of wet year water when these supplies are available and Chino Basin facilities are capacity limited.	non MWD replenishment
		62	Cucamonga Basin Upgrades	This project category will identify local member agency projects that would result in additional groundwater production benefits coming into the IEUA service area from the Cucamonga Basin.	other GW capacity

		87	Prior Stored Chino Groundwater	This category will allow supply to be taken from groundwater stored in the Chino Basin, pre 2014. It is estimated that approximately 400,000 AF of stored groundwater is available, of which 280,000 AF is made available for IEUA member agencies. This supply category will be managed on a case by case basis as selected into the Regional supply portfolios. The supply will be limited, but can be used annually or intermittent as needed.	CB Take
		95	MWD Replenishment or discount wet year water-Increment 1	Maximize replenishment or discount wet year imported water from MWD. Availability pending MWD supply and pricing. Supply can be taken in-lieu or for supplemental recharge. Increment 1 would allow for the purchase of an additional 10,000 AFY. Can be purchased annually or intermittently. Assume benefit after 2 consecutive wet years (assume 1 in 15 years)	MWD Replenishment
	Portfolio Theme	**Project ID #**	**Project Name**	**Description**	**Category**
Strategy 5A	10-06-16 Group Strategy (imported water & conjunctive use focus, WUE w. 2 agencies on BBR)	36	SBVMWD IW Transfer	As a SWP contractor, San Bernardino Valley MWD (SBVMWD) has a Table A allocation. This option would involve constructing an intertie between SBVMWD's imported water system. The supply would be temporary or seasonally available and could be purchased and wheeled into the Chino Basin. Assume benefit 1 in 5 years.	non MWD IW
		43	WUE - Budget Rates- Increment 1 (2 agencies, 15% savings per agency)	Implement water budget based rates for 2 member agencies (assuming 15% total savings per Agency after 3 years). To be verified with WUEBP. Increment 1 would provide up to 13,350 AFY of savings.	WUE
		66	Advanced Metering Technologies	Install advanced metering infrastructure (AMI) between retail meters and a utility provider. Will provide real-time data about consumption and allow customers to make informed choices about usage.	WUE
		89	Max Tier 1 MWD Imported Water-Increment 1	Maximize imported water from MWD at Tier 1 rate. Total available supply at Tier 1 rate is 93,283 AFY or cumulative purchase order maximum of 932,830 AF through December 31, 2024. Supply can be taken directly, in-lieu or for supplemental recharge. Increment 1 would allow for the purchase of an additional 7,850 AFY. Can be purchased annually or intermittently.	MWD IW
		90	Max Tier 1 MWD Imported Water-Increment 2	Maximize imported water from MWD at Tier 1 rate. Total available supply at Tier 1 rate is 93,283 AFY or cumulative purchase order maximum of 932,830 AF through December 31, 2024. Supply can be taken directly, in-lieu or for supplemental recharge. Increment 1+2 would allow for the purchase of an additional 15,700 AFY. Can be purchased annually or intermittent.	MWD Replenishment
		91	Max Tier 1 MWD Imported Water-Increment 3	Maximize imported water from MWD at Tier 1 rate. Total available supply at Tier 1 rate is 93,283 AFY or cumulative purchase order maximum of 932,830 AF through December 31, 2024. Supply can be taken directly, in-lieu or for supplemental recharge. Increment 1-3 would allow for the purchase of an additional 23,550 AFY. Can be purchased annually or intermittent.	MWD Replenishment
	Portfolio Theme	**Project ID #**	**Project Name**	**Description**	**Category**
		9	WRCRWA Intertie	The Western Riverside County Regional Wastewater Authority (WRCRWA) Plant intertie would allow for the delivery of recycled water from the WRCRWA Plant to be used in the IEUA southern service area. This would also allow additional recycled water to be delivered into the northern service area groundwater recharge basins by reducing the demand from the RP-1 930 pressure zone pump station.	Outside RW

Strategy 5B	Strategy #5A + WUE w. 2 agencies on BBR & RW local and external maxed	11	Pomona RW Exchange/Transfer	The City of Pomona does not currently use all of the treated effluent from the Pomona WRP. One concept would involve partnering to develop and expand their recycled water facilities in exchange for an agreed amount of their Chino Basin groundwater right. Could include other supply transfer agreement such as reclaimable waste and/or groundwater.	Outside RW
		12	RP-1 advanced treatment RW Injection - Increment 1	This project would construct an advanced water filtration (e.g. process treatment that combines micro or ultrafiltration) facility at RP-1 to further treat tertiary effluent to allow the water to be injected directly into Chino Basin. The sizing of the facility and the volume to be produced will be determined as part of the portfolio development process.	GWR
		19	Recycled Water Direct Use System Expansion - Increment 1	IEUA developed a new Recycled Water Program Strategy concurrent with the IRP. This project category will be used to determine the potential interest in expanding the direct use system beyond the Agency's Ten Year CIP. Includes the reuse of regional wastewater supply, approximately 83,000 AFY by 2035 and potential recycled water interties.	Direct RW
		20	Recycled Water Direct Use System Expansion- 5,000 AF increment 2	Distribution expansion to increase direct use by 10,000 AF	Direct RW
		23	Existing GWR Basin Improvements beyond RMPU - Increment 1	The 2013 Chino Basin RMPU recommended a set of preferred projects to improve recharge at the existing groundwater spreading basins. This project category represents the next increment of additional groundwater recharge (imported water and/or recycled water) capable at the existing facilities. Increment 1 facilities would increase recharge at existing basins within the Chino Basin by an additional 2,500 AFY.	GWR
		24	Existing GWR Basin Improvements beyond RMPU- 2,500 AF increment 2	The 2013 Chino Basin RMPU recommended a set of preferred projects to improve recharge at the existing groundwater spreading basins. This project category represents the next increment of additional groundwater recharge (imported water and/or recycled water) capable at the existing facilities. Increment 1+2 facilities would increase recharge at existing basins within the Chino Basin by an additional 5,000 AFY.	GWR
		25	Existing GWR Basin Improvements beyond RMPU- 5,000 AF increment 3	The 2013 Chino Basin RMPU recommended a set of preferred projects to improve recharge at the existing groundwater spreading basins. This project category represents the next increment of additional groundwater recharge (imported water and/or recycled water) capable at the existing facilities. Increment 1-3 facilities would increase recharge at existing basins within the Chino Basin by an additional 10,000 AFY.	GWR
		26	Existing GWR Basin Improvements beyond RMPU- 5,000 AF increment 4	The 2013 Chino Basin RMPU recommended a set of preferred projects to improve recharge at the existing groundwater spreading basins. This project category represents the next increment of additional groundwater recharge (imported water and/or recycled water) capable at the existing facilities. Increment 1-4 facilities would increase recharge at existing basins within the Chino Basin by an additional 15,000 AFY.	GWR
		27	Purchase Land to Construct New GWR Basins - Increment 1	Purchase land to construct new groundwater recharge basins in the service area to capture additional stormwater, recycled water and/or imported water for groundwater recharge. Increment 1 would provide up to an additional 2,450 AFY of recharge capacity, which is approximately one new basin at 350 AF per month for 7 months of operation.	GW Capacity

Attachment 4

IRP Strategy Summary Tables									
Supply in Addition to Baseline by 2040 in Acre-Foot per Year (AFY)									
Supply Type	**Baseline**	**1**	**2A**	**2B**	**3A**	**3B**	**4**	**5A**	**5B**
Chino Groundwater	91,300	8,400					8,400		
Stormwater	6,400								
Recycled Water									
Locally Developed[(1)]	64,700		*17,000*	*17,000*	*17,000*	*17,000*	*20,800*		*27,800*
External Supplies			10,500	10,500	10,500	10,500	9,000		
Chino Desalter	17,700								
Local Surface	22,100								
Non-Chino Groundwater	11,600						2,500		
Imported Water									
MWD	69,750			7,850	667	667	667	23,550	23,550
Other				4,900		4,900	6,400	1,000	1,000
WUE [(2)]	1,000		5,000	5,000	36,700	55,050	13,500	18,500	18,500
add'l supplies subtotal		*8,400*	*32,500*	*45,250*	*64,867*	*88,117*	*61,267*	*43,050*	*70,850*
Total Supply	**283,550**	**291,950**	**316,050**	**328,800**	**348,417**	**371,667**	**344,817**	**326,600**	**354,400**

Notes:

(1) Baseline Supply of 18,700 GWR + 29,000 Direct + 17,000 SAR, or total of 64,700 AFY, based on Agency TYCIP and not total available wastewater supply. Estimated total available local RW supply by 2040 to be 85,550 AFY based on 2015 WWFMPU flow monitoring.

(2) Baseline WUE of 1,000 AFY already included in the Urdan Demand forecast. Therefore, not included in Supply Table to avoid double counting. Only new WUE in addition to Baseline to be counted in Total Supply.

IRP Strategy Summary Tables

Capacity/Supply Redundancy in Addition to Baseline by 2040 in Acre-Foot per Year (AFY)

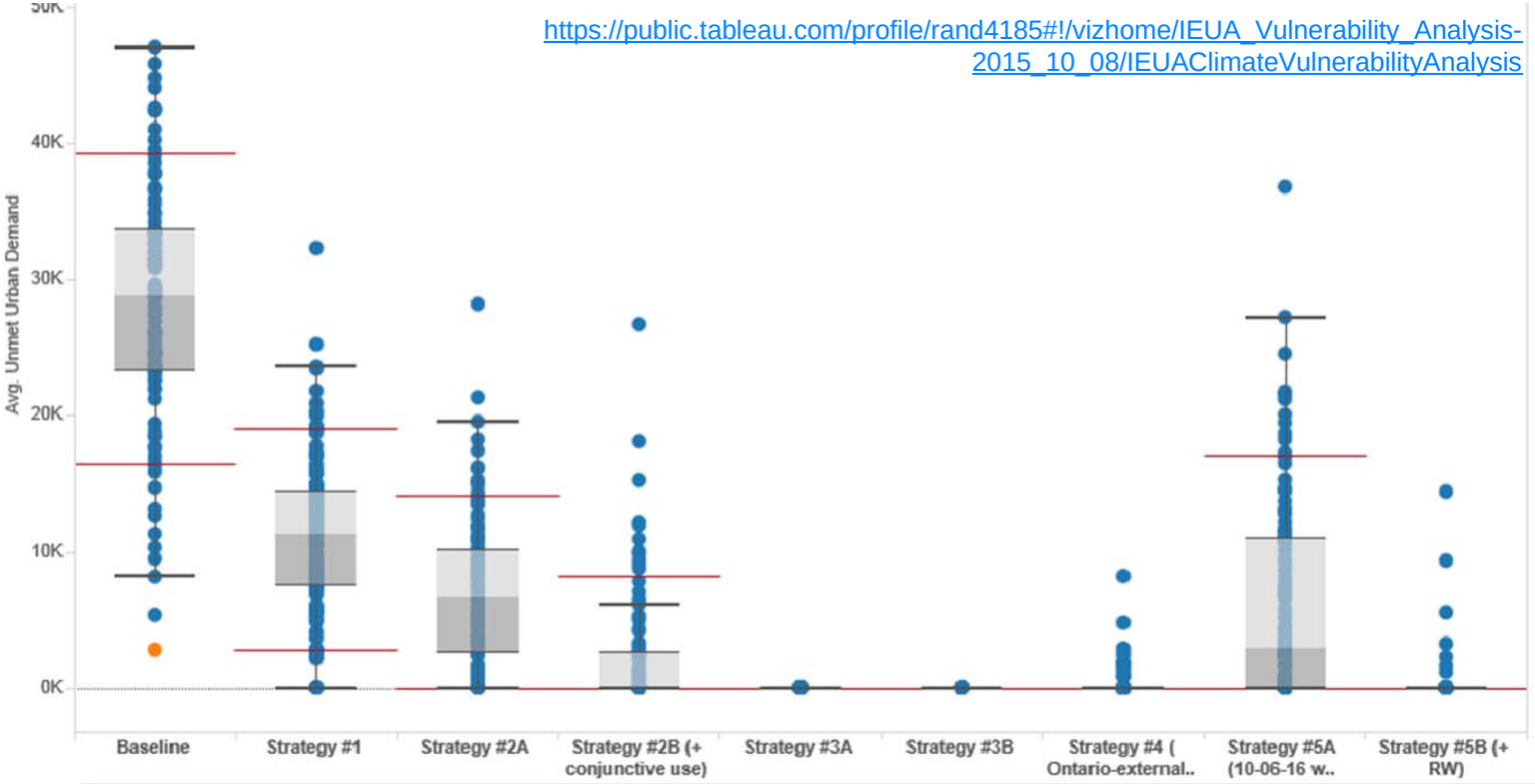
Category	Baseline	1	2A	2B	3A	3B	4	5A	5B
Chino Groundwater	91,300	20,000	10,000	10,000	1,400	1,400			
Stormwater	6,400		2,450	2,450					2,450
Recycled Water									
GWR (Basin/inject)	18,700	20,000	17,500	17,500	22,500	22,500	29,800		17,800
RW Direct	29,000		10,000	10,000	5,000	5,000			10,000
SAR Obligation	17,000								
Chino Desalter	17,700								
Local Surface	22,100	1,000			600	600			
Non-Chino Groundwater	11,600								
Imported Water [3][4]									
MWD	69,750								
Other									
WUE	1,000								
Total Capacity	**283,550**	**41,000**	**39,950**	**39,950**	**29,500**	**29,500**	**29,800**	**-**	**30,250**

Notes:

(3) For purposes of the IRP, existing spreading basin capacity assumed to be on average 10,000 AF per month for supplemental recharge. Per table 4-1 of 2013 RMPU, by taking average of both estimates for Total Capacity.

Unmet Demand of Strategies

https://public.tableau.com/profile/rand4185#!/vizhome/IEUA_Vulnerability_Analysis-2015_10_08/IEUAClimateVulnerabilityAnalysis



	AF Unmet Demand								
% of Model Runs in Range	Baseline	Strategy 1	Strategy 2A	Strategy 2B	Strategy 3A	Strategy 3B	Strategy 4	Strategy 5A	Strategy 5B
Lower Quartile (25%)	23,300	7,500	2,500	demands met	demands met	demands met	demands met	demands met	demands met
Median (50%)	28,800	11,200	6,600	demands met	demands met	demands met	demands met	2,900	demands met
Upper quartile (75%)	33,600	14,400	10,000	2,500	demands met	demands met	demands met	11,000	demands met
Outlier (90%)	47,000	23,600	19,600	6,200	demands met	demands met	demands met	27,200	demands met
Highest Outlier (100%)	56,300	32,300	28,200	26,700	demands met	demands met	8,200	36,800	14,400

Attachment 5

Inland Empire Utilities Agency
A MUNICIPAL WATER DISTRICT

6075 Kimball Avenue • Chino, CA 91708
P.O. Box 9020 • Chino Hills, CA 91709
TEL (909) 993-1600 • FAX (909) 993-1985
www.ieua.org

October 1, 2015

Marty Zvirbulis
Cucamonga Valley Water District
10440 Ashford Street
PO Box 638
Rancho Cucamonga, CA 91729

Subject: Inland Empire Utilities Agency (IEUA) Integrated Resource Plan

Dear Mr. Zvirbulis:

Over the last year, our agencies have worked closely together to prepare the region to successfully compete for hundreds of millions of dollars in state grants and loans that will become available as soon as the end of this year. A critical component of this effort is the development of an Integrated Water Resources Plan (IRP) for the IEUA service area. The IRP will evaluate climate change impacts on our region's future water needs and recommends a strategic roadmap for investments that will be essential to assuring that we have adequate water supplies in the future. In August, representatives from the Boards/Councils within our region jointly endorsed the goals of the IRP to provide a water supply strategy that demonstrates "Resilience, Water Efficiency, Sustainability and Cost Effectiveness."

In an effort to ensure that the IRP development is timed in a manner to independently support both planning and implementation priorities, the process will be managed in two phases:

Phase 1: Development of regional water resource strategies to meet future (2040) demand forecasts due to climate change and regional growth.

Phase 2: Capital project scope, costs, prioritization and implementation schedule development.

As part of the Phase 1 effort, regional technical staff has done an outstanding job identifying supply/demand projections and the development of different potential water resource strategies that could be used by the region to meet any future supply deficits. Also included in this work is the development of a robust RAND climate change evaluation model which is being "stress tested" using combinations of various potential water management strategies. The Phase 1 report will include the identification of priority regional water resource strategies, ranges of costs for various supply categories and a regionally developed, all-inclusive list of potential supply projects (local and regional). This report will be used to complete the Programmatic Environmental Impact Report (PEIR) for IEUA. Completion of the PEIR is critical for the region to be eligible for various future grant opportunities that are expected to become available. We anticipate completing Phase 1 by the end of 2015.

In 2016, we will start a Phase 2 of the IRP. This phase will include the definition of specific projects that support each prioritized regional water resource strategy. These projects will be collaboratively identified and grouped such that grant funding can be strategically pursued to meet regional investment objectives. Cost impacts of each type of project and the various water supply types will be considered at this time. Before any specific project is recommended to move forward for funding, additional site-specific evaluations will need to be conducted by the sponsoring agency or through regional agreement. Phase 2 of the IRP should be completed by the end of 2016.

We greatly appreciate your support for the IRP process and the engagement of your technical staff in these discussions. We are excited about the information that the process is now yielding, and look forward to meeting with our policy leaders at the November 4th workshop to share identified opportunities that will ensure a reliable water future for the region.

If you have additional questions or would like to meet and discuss this process, please don't hesitate to contact Sylvie Lee, Manager of Planning and Environmental Resources, at 909.993.1646 or slee@ieua.org or me.

Respectfully,

P. Joseph Grindstaff
General Manager
Inland Empire Utilities Agency

cc: John Bosler, Cucamonga Valley Water District
Braden Yu, Cucamonga Valley Water District

Attachment 6

Integrated Water Resources Plan Update

Joint IEUA Board & Regional Policy Committee Workshop

"Thinking in terms of tomorrow"

Inland Empire Utilities Agency
A MUNICIPAL WATER DISTRICT

November 4, 2015

Agenda

- Integrated Water Resources Plan Recap
  - Goals & Objectives
  - Phasing
- Climate Model Results
  - Future Trends & Impact on Supplies
- Results of how water supply strategies improve resiliency and impact operation of the Chino Basin
- Phase I Recommendation

Purpose

- Build on our past successes of water resources and plan for the future
- Evaluate the impact of climate change
- Ensure that the region's growth can be sustained
- Identify and prioritize grant funding

Regional Water Reliability $810 M	Water Recycling $725 M	Groundwater Sustainability $900M	Watersheds & Flood Management $114M
Spring 2016	Continuous application	TBD	Spring 2016

Integrated Water Resources Plan Goals

Resilience • Water Efficiency • Sustainability • Cost Effectiveness

Resilience:

Regional water management flexibility to adapt to climate change and economic growth, and any changes that limit, reduce, or make water supplies unavailable.

Water Efficiency:

Meet or exceed rules and regulations for reasonable water use.

Sustainability:

Provide environmental benefits, including energy efficiency, reduced green house gas emissions, and water quality improvements to meet the needs of the present without compromising the ability of future generations meeting their own needs.

Cost-Effectiveness:

Supply regional water in a cost effective manner and maximize outside funding.

Integrated Water Resources Plan

Phase 1 - Identification and Vision of IRP:

- 2040 demand forecast
- Climate change modeling of water supplies
- Resiliency testing of resource strategies
- Regional resources strategies development

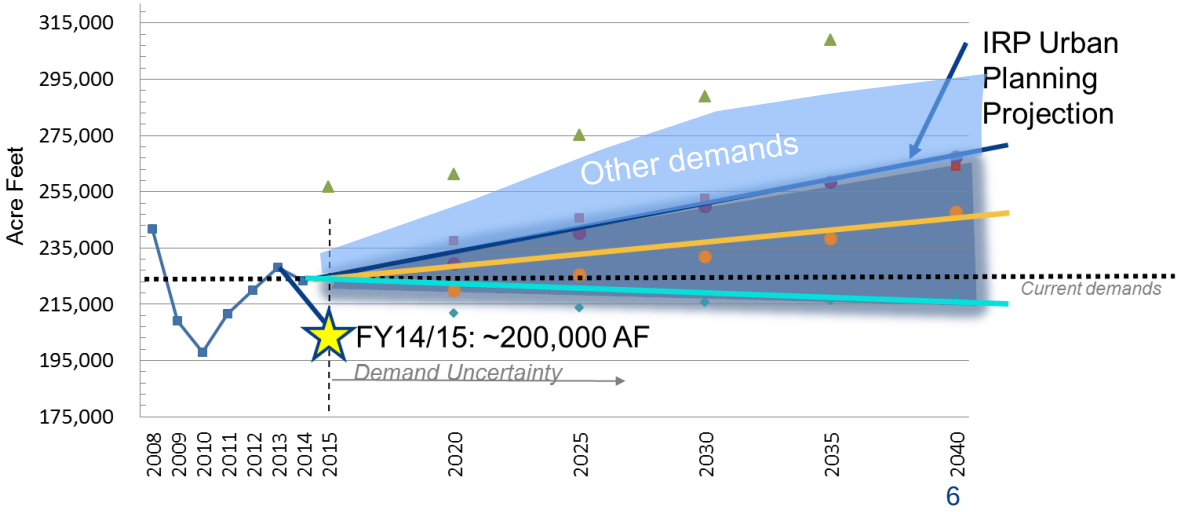
Phase 2 – Implementation/Capital Investment Program:

- Disaggregation of regional demand and supplies
- Capital project scope, costs, and prioritization
- Implementation schedule development

Regional Demand Projection

2040 Regional demand by 2040 is ~295,000 AF

High= new development continues at current levels of density and efficiency
Medium= new development is more efficient indoor, outdoor landscape with water efficient plants
Low= new development is dense, highly efficient, low water use plants, less outdoor landscaping



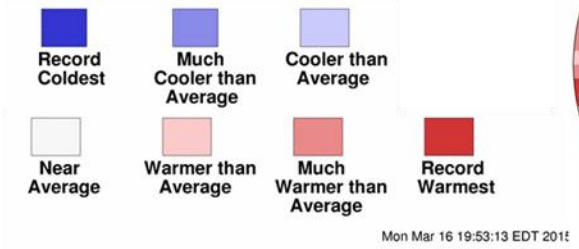
Low Water Use Landscape

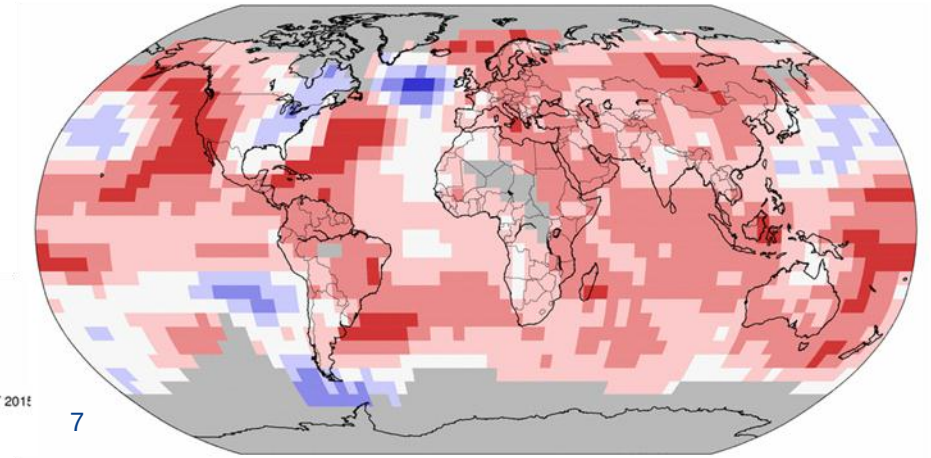
Water Year 2014-15 Summary

- Globally, warmest winter on record

OCT NOV **DEC JAN FEB** MAR APR MAY JUN JUL AUG SEP OCT

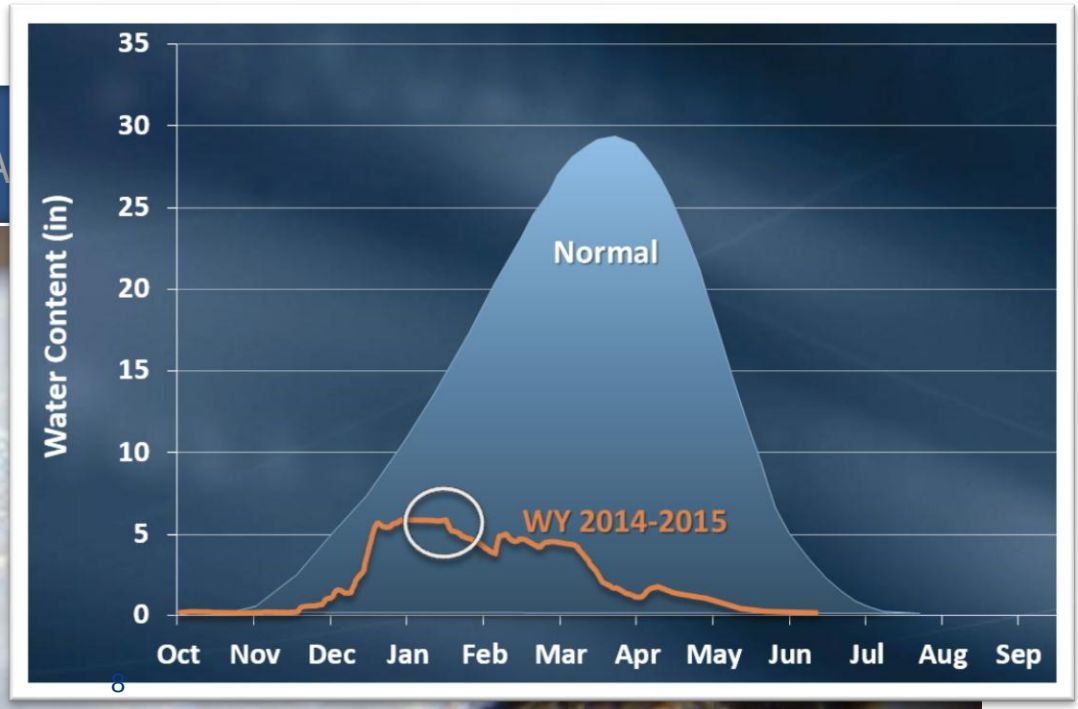
Land & Ocean Temperature
Percentiles Dec 2014-Feb2015
NOAA's National Climatic Data Center





Water Year 2014-15 Summary

Earliest and lowest snowpack peak



Water Year 2014-15 Summary

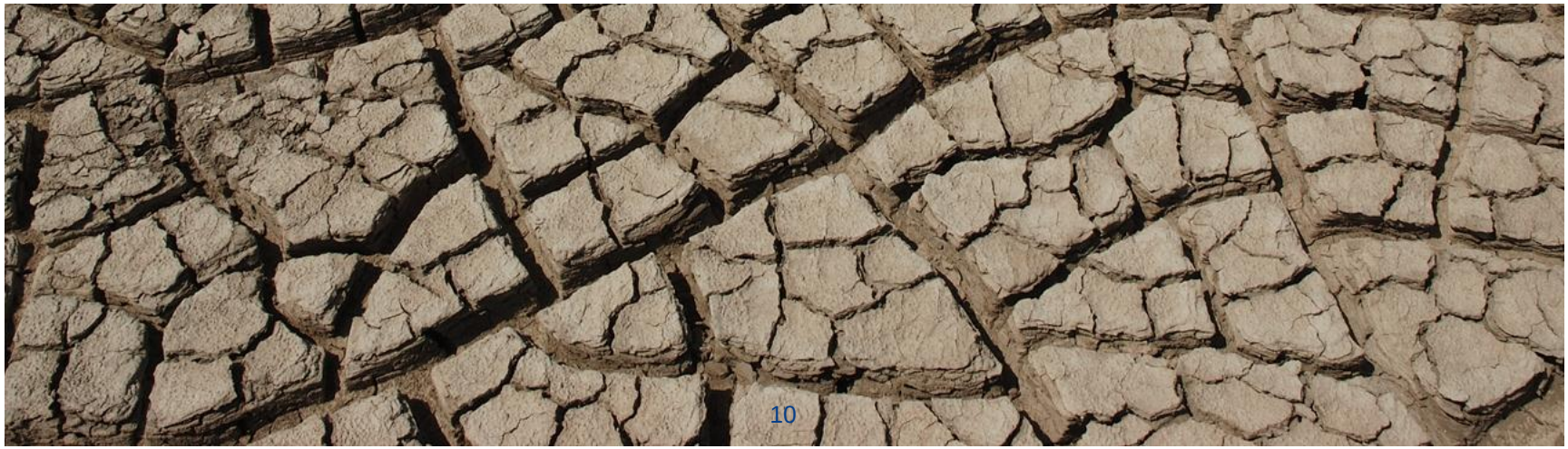
- Lowest CA snow survey on record
- 25% reduction mandated by Gov. Brown

OCT NOV DEC JAN FEB MAR **APR** MAY JUN JUL AUG SEP OCT

Water Year 2014-15 Summary

- DWR announces no snowpack left in northern Californian watersheds

OCT NOV DEC JAN FEB MAR APR **MAY** JUN JUL AUG SEP OCT



Water Year 2014-15 Summary

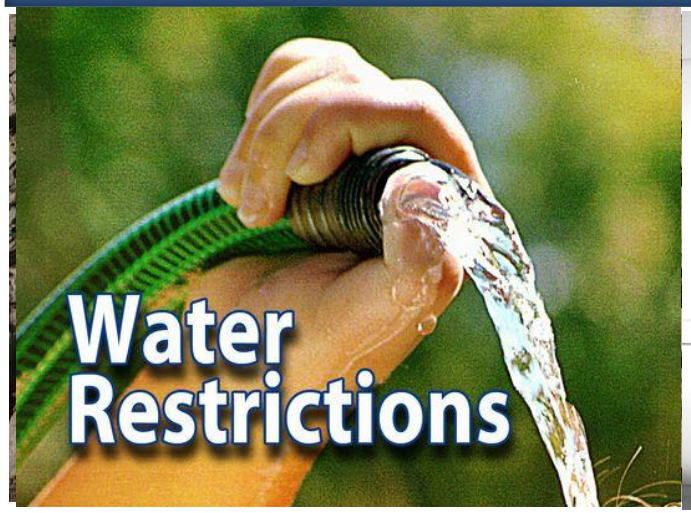
Lake Mead lowest level since originally filled

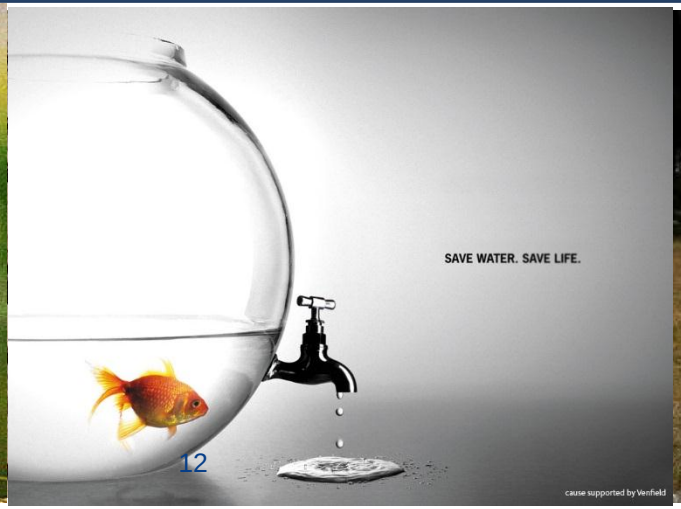
JUL AUG SEP OCT

Water Year 2014-15 Summary

MWD Cuts water allocations to Agencies by 15%

OCT NOV DEC JAN FEB MAR APR MAY JUN **JUL** AUG SEP OCT

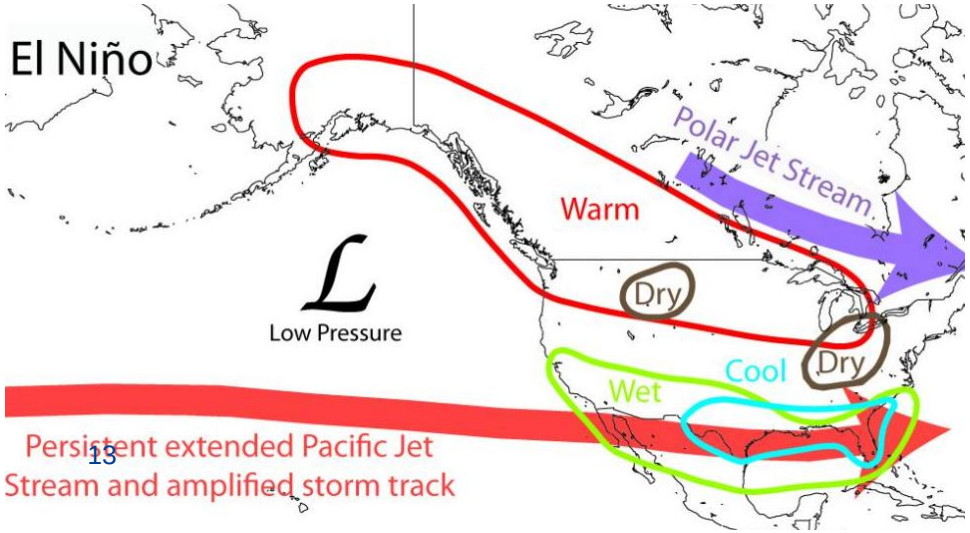




Water Year 2014-15 Summary

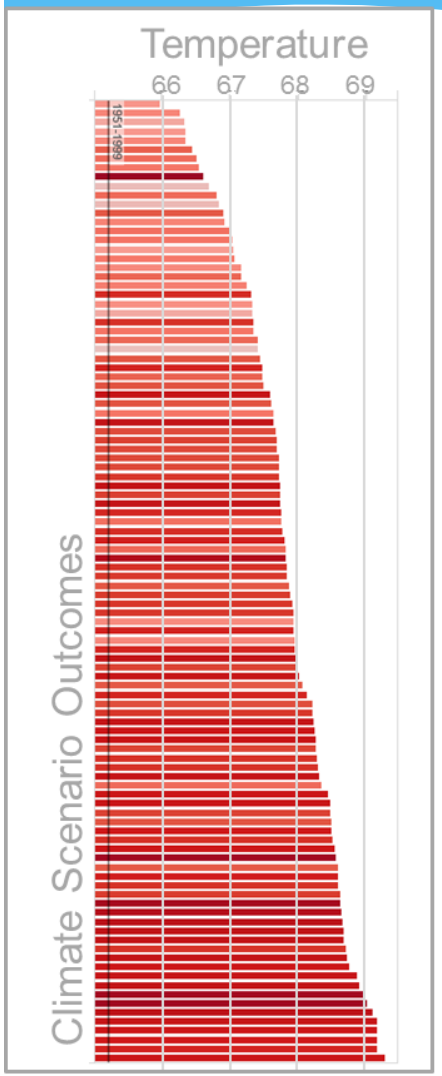
- El Nino predicted
- LA experiences most severe 1-day rainstorm

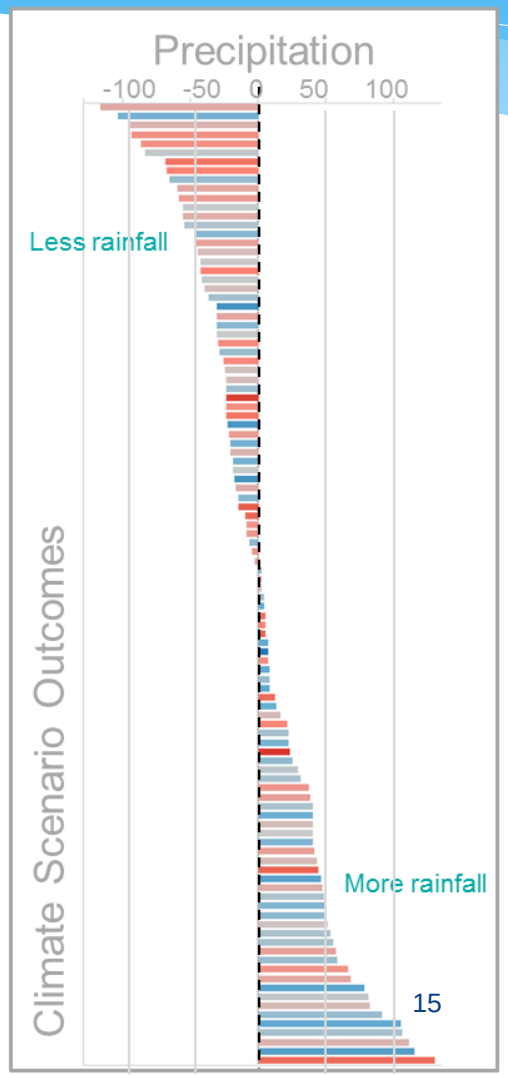
OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG **SEP** OCT



Climate Model Results

Future Climate Trends





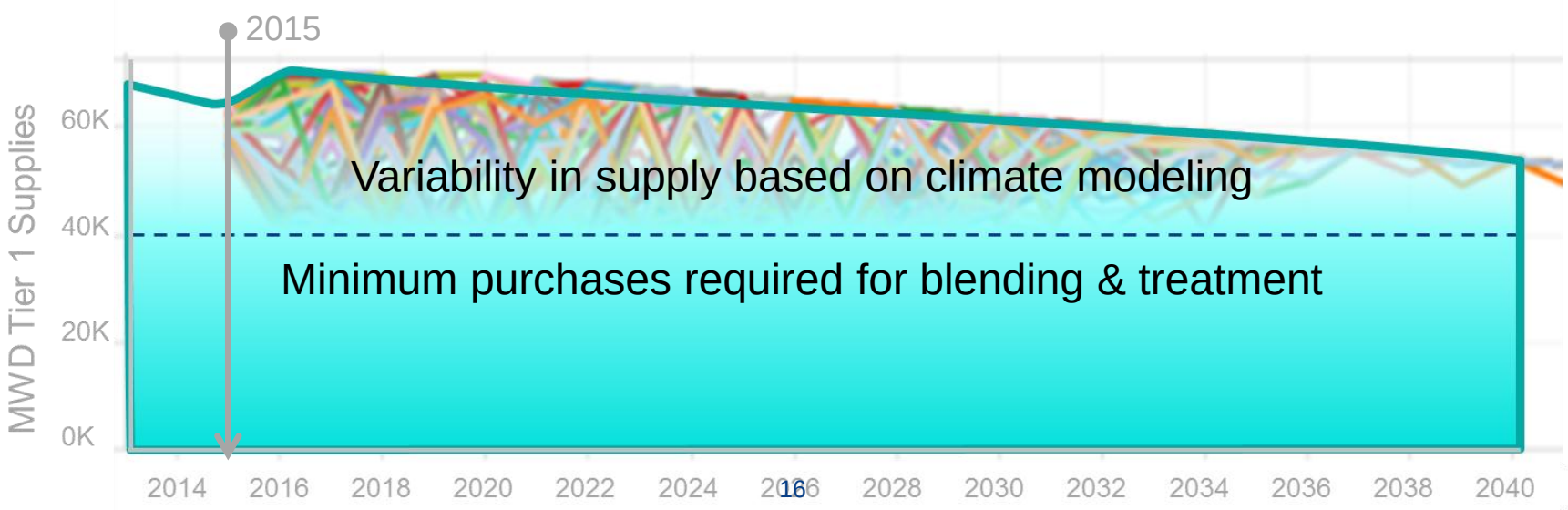
106 climate scenarios from RAND indicate:

- Temperature will increase up to 3.4 ° F
- Precipitation will be highly variable (no clear trend)

RECLAMATION NCAR USGS
Santa Clara University
CLIMATE CENTRAL
SCRIPPS INSTITUTION OF OCEANOGRAPHY

State Water Project supplies are dependent on climate

- Imported water currently accounts for ~1/3 of regional supplies
- MWD imported water supplies from the State Water Project are impacted by snowpack in the Sierra Nevada mountains



Stormwater & Creek flows are dependent on climate

- Higher temperatures will cause less runoff into storm drains, basins and creeks for capture
- These supplies are heavily dependent on rainfall, which is extremely variable


Rain


Stormwater

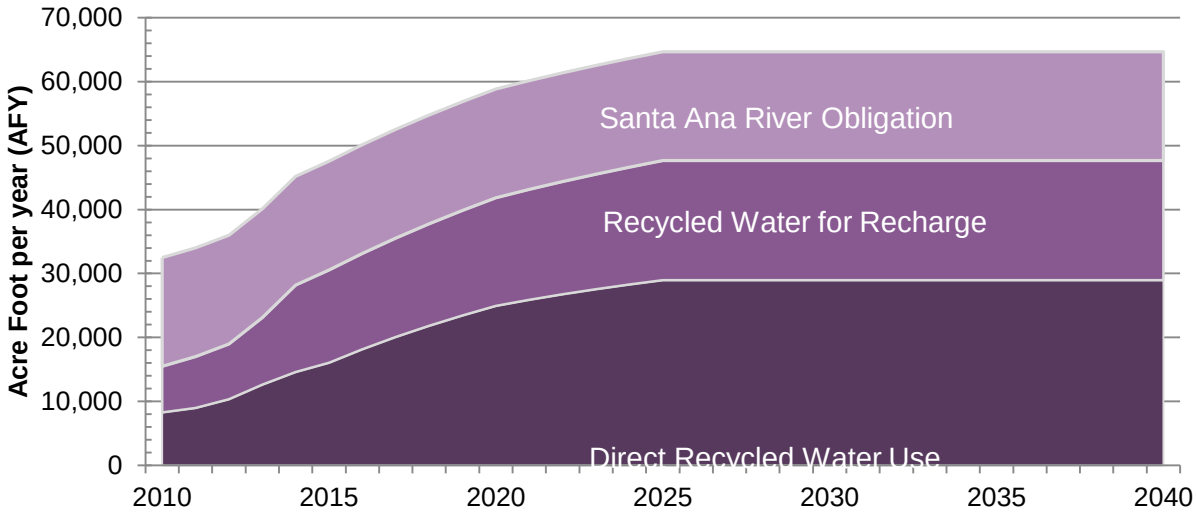

Lytle Creek

Groundwater slightly impacted by climate

Decrease of natural groundwater recharge

- Dependent on rainfall
- Hotter temperatures increase dryness of soil which results in less runoff
- Also impacted by increased hardscaping due to development patterns

Recycled Water
Not Impacted by Climate



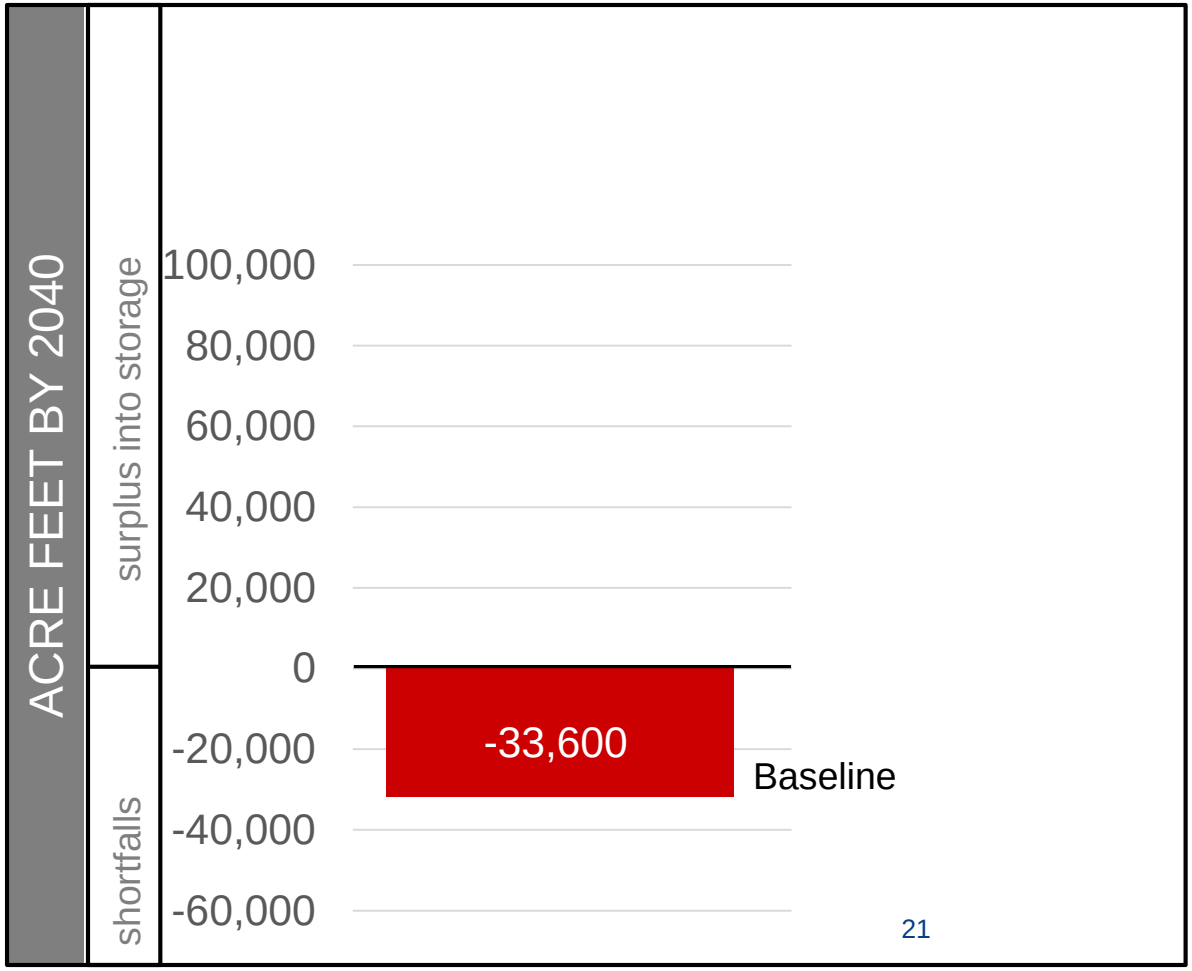
Supplies that we can count on …

Supply Type	Baseline 2040	Supply Under Climate*
Recycled Water	64,700	100%
Chino Basin Groundwater	91,300	96%
Stormwater	6,400	69%
Local Surface	22,100	63%
Imported Water[(1)]	69,750	72%

*Supply levels are based on the range that supplies fall within in 75% of the climate simulations

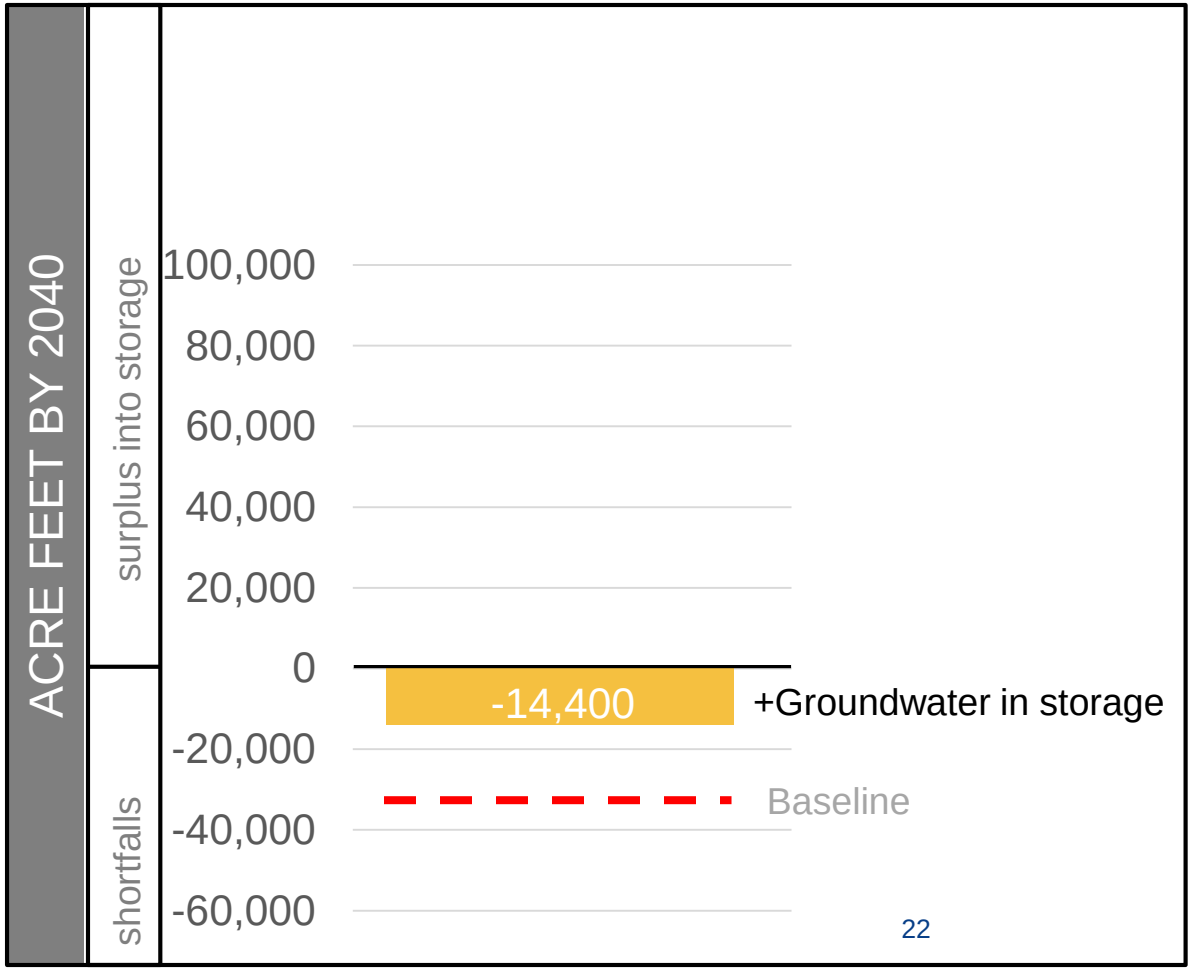
[(1)]State Water Supply availability is expected to decrease due to constraints on the Delta and projections of reduced snowfall in the Sierra Nevada's

Baseline supplies – with climate change – meet 80-90% of demands



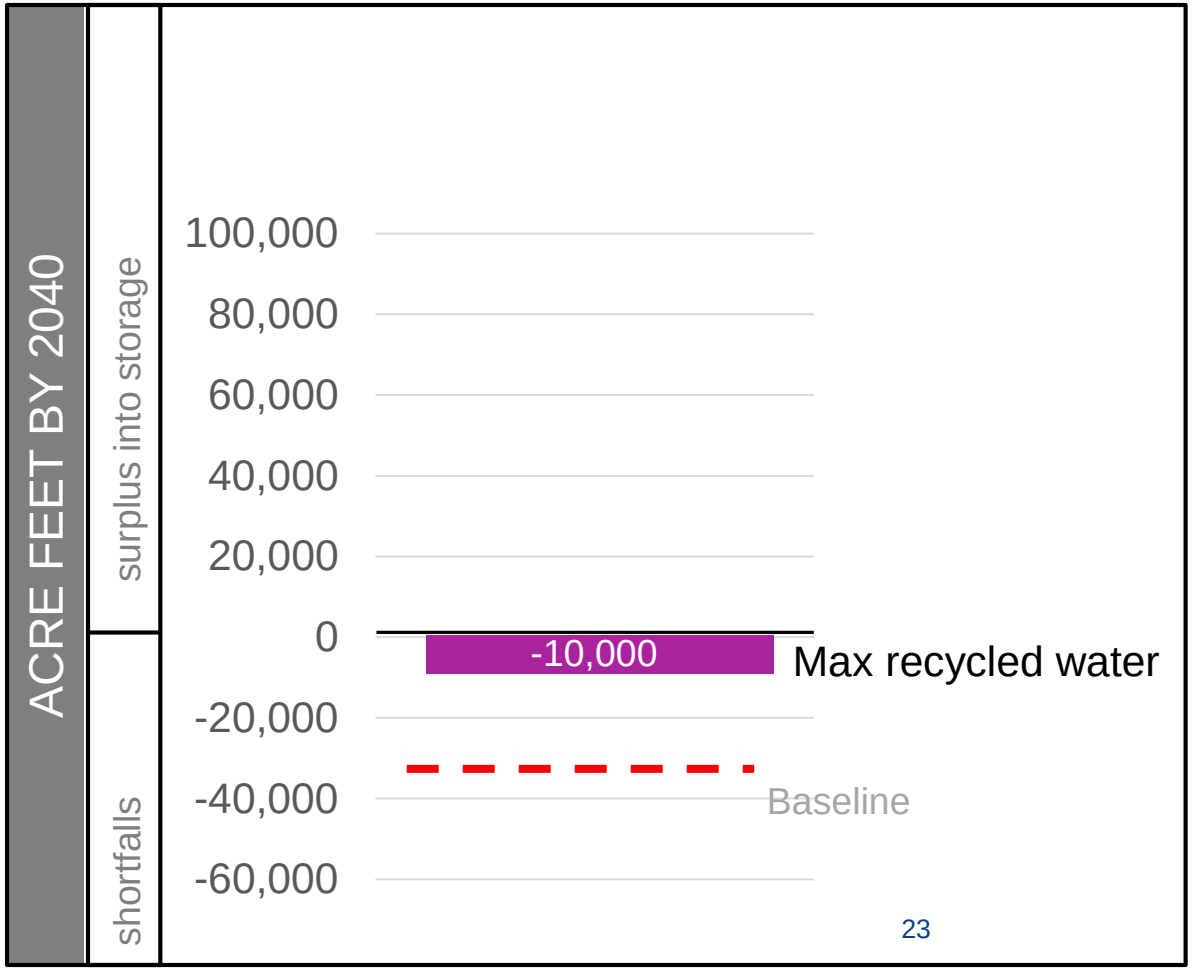
- Includes current planned projects through 2025
- Population growth of 300,000 (~30%)

Using existing stored groundwater meets 95% of the demands



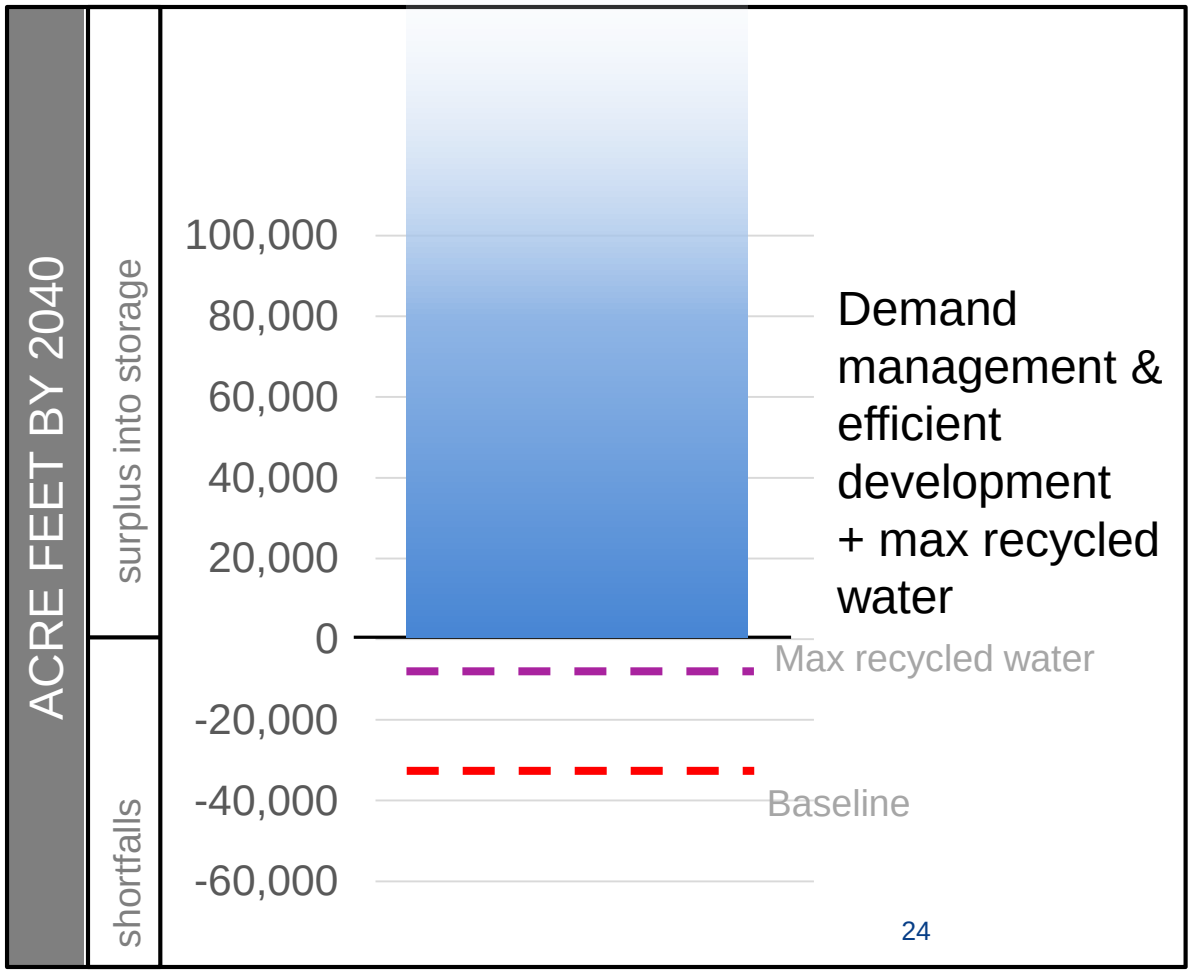
- Reduces shortfalls to 5%
- Utilizes existing stored groundwater reserves on an annual basis
- Finite resource
- Not sustainable past 2040

Maximizing recycled water meets 96% of demands



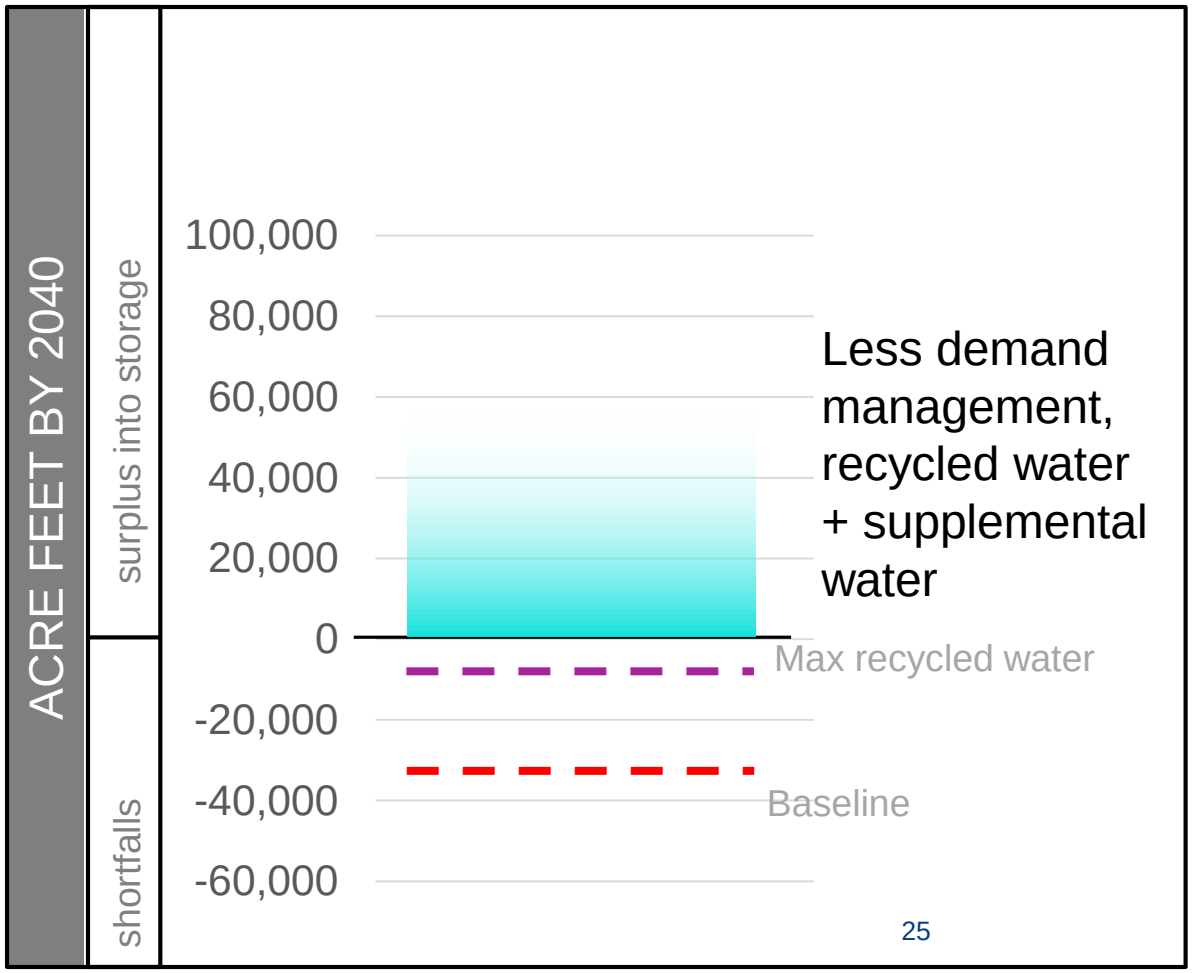
- Maximizes locally available recycled water
- Includes agreements for external recycled water supplies such as from JCSD
- Is a climate resistant supply
- Sustainable

Conservation combined with maximum recycled water builds a supply surplus



- Surplus supplies put in storage for future use
- Eliminates shortages in climate scenarios
- Builds storage reserves over 200,000 AF
- Opportunity to withstand catastrophes and potential for water exchanges

Conservation and supplemental supplies meets demands and could provide supply surplus



- Surplus supplies put in storage for future use
- Reduces shortages in the majority of climate scenarios
- Creating a storage reserve is dependent on external supply availability

IRP Lessons Learned

IRP “Lessons Learned” Value of Conservation

- 10% reduction from conservation or efficient development significantly increases reliability and reduces shortages
- Conservation creates the opportunity to build reserves

IRP "Lessons Learned" Value of Supplemental Water

- Supplemental water increases reliability and resiliency
  - Includes surface, imported and external recycled water
- Creates the opportunity to build reserves when combined with conservation

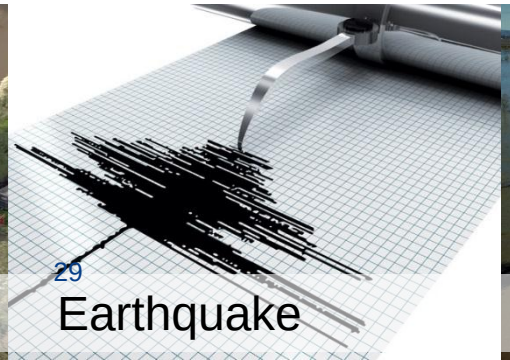
IRP "Lessons Learned" Value of Increasing Groundwater Storage

Water stored in the groundwater basin increases resilience

- Not impacted by climate once in storage
- When supplemental supplies are available, place them into storage
- Reduces dependence on climate variable supplies
- Mitigates abnormal or catastrophic events


ASR well


Broken Line


Earthquake


Levee Breach

Core Recommendations from Phase 1:

Resilience • Water Efficiency • Sustainability • Cost Effectiveness

- **Recycled Water**: Continue to invest in recycled water projects to maximize the beneficial reuse.
- **Groundwater**: Acquire additional supplemental water to enhance groundwater recharge, sustain production, and reduce salinity.
- **Conservation**: Implement measures to reduce current urban demand at least 10% to enhance water supply resiliency.

Core Recommendations from Phase 1:

Resilience • Water Efficiency • Sustainability • Cost Effectiveness

- **Imported Water**: Strategically maximize purchases of imported water for recharge or in-lieu when available.
- **Stormwater**: Continue to maximize stormwater recharge projects, including rainwater capture and infiltration.
- **Supplemental Water**: Pursue external water supplies including exchanges, storage and water transfers to augment groundwater recharge and recycled water.

IEUA Business Goals

"IEUA is committed to the development and implementation of an integrated water resource management plan that promotes cost-effective, reliable, efficient and sustainable water use along with economic growth within the service area"

Recycled Water: IEUA will support maximizing beneficial reuse of recycled water to enhance reliability and reduce dependence on Imported Water.

Commitment: 50,000 AFY by 2025

Groundwater Recharge: IEUA will maximize all sources of groundwater recharge.

Commitment: Support recharge of all Stormwater, maximize Recycled Water, and pursue purchase and storage of cost-effective Supplemental Water supplies.

Next Steps

* Draft IRP
* Complete Programmatic EIR
* Funding opportunities
  - Chino and Chino Hills – Budget Based Rate Structure Track
  - JCSD External RW Supplies
  - Pomona/MVWD RW Intertie
* Set up water forum to make decisions on water resources for the region
  - Implement regular technical meetings

WORKSHOP

1B

Inland Empire Utilities Agency
A MUNICIPAL WATER DISTRICT

Date: November 4, 2015

To: The Honorable Board of Directors and
Regional Policy Committee

From: P. Joseph Grindstaff
General Manager

Submitted by: Chris Berch
Executive Manager of Engineering/Assistant General Manager

Sylvie Lee
Manager of Planning and Environmental Resources

Subject: Recycled Water Policy Principles

RECOMMENDATION

This is an informational item for the Board of Directors and Regional Policy Committee members to review.

BACKGROUND

The Inland Empire Utilities Agency (IEUA) and its contracting agencies have developed a successful regional Recycled Water Program for both direct use and groundwater recharge. In 2000, the region identified that recycled water use was a critical component in drought-proofing and maintaining its economic growth. With imported water rates increasing and long-term imported supply reliability in decline, the region committed to aggressively and proactively develop local water supplies to offset these impacts. This set the path for the development of a regional recycled water distribution system.

While the foundational commitment to beneficial reuse of recycled water remains unchanged, some fundamental concepts have been questioned over the past few years, which has resulted in the region working together to develop Recycled Water Policy Principles to address the changes since the inception of the program. The region's goal to maximize the beneficial use of recycled water has not changed. However, the commitment to connect additional recycled water users has stagnated over the past few years. At this time, several contracting agencies are struggling with the inherent conflict between use in excess of "base entitlement" (as defined by the Regional Sewage Service Contract) and the prioritization of direct use over groundwater recharge. The

struggle has led some contracting agencies to be concerned about their local benefit and perceived inequities.

In order to move forward together as a region, it is appropriate to reevaluate and affirm the regional Recycled Water (RW) Policy Principles prior to implementing any remaining significant system improvements to the RW Program and to clarify how these principles will govern the future benefits received by all IEUA contracting agencies.

IEUA has been meeting with the contracting agencies for over the last few years to develop modifications to the foundational principles. Subsequent to the Regional Technical Committee Meeting in September, the agencies collectively met at a workshop on October 13, 2015 to make recommendations on the RW Policy Principles.

The proposed RW Policy Principles resulting from these discussions are summarized below and provided in the attachment in detail.

RW Policy Principles

1. **Maximize the beneficial use of recycled water to enhance local water resource availability and reduce reliance on imported water.**

    1. IEUA will continue the development of the Regional RW infrastructure by providing equitable access for the contracting agencies to achieve reuse of 50,000 AF/year by 2025.
    2. IEUA will pursue the long term acquisition of recycled water from out of service area sources to supplement the regional supply.

2. **Promote efficient application and use of recycled water as a reliable and fundamental component of drought-proofing the IEUA service area.**

    1. Ensure efficient use of recycled water at the point of use, consistent with rules and expectations of responsible potable water use.

3. **The regional RW allocation rights will be based on the following:**
    1. Regional discharge obligations (Santa Ana Judgment, environmental obligations, etc.), will be met first from available RW supply.
    2. Contracting agency pro-rata entitlement based on available recycled water supply from 3.1. above.
    3. Contracting agency use above entitlement requires the acquisition of replacement water.

4. **The regional recycled water system will be operated based on the following priorities for RW deliveries:**

1. Minimal operational discharges (instrumentation, environmental obligations, etc.).
2. Contracting agency deliveries.
3. Regional groundwater recharge.

5. **Meet peak RW direct demands through coordinated demand management of recycled water deliveries.**

    1. Large users will have pressure sustaining valves to ensure that overall regional demands are reliably met.

6. **Maintain a financially viable recycled water program with rates that incentivize use of all available RW and that provides funding to achieve full cost-of-service for the recycled water program.**

    1. Set recycled water rates that cover the full cost of Operations & Maintenance (O&M) and Rehabilitation & Replacement (R&R) for the system.

7. **Maximize the use of RW capital investments made by IEUA and its contracting agencies with recycled water use within the region.**

    1. Retail contracting agencies shall substantially fulfill prior recycled water connection commitments for all existing infrastructure.
    2. Firm contracting agency commitments for RW use will drive new regional investments.

The Recycled Water Policy Principles are part of the Agency's Recycled Water Business Goal objective that IEUA will support maximizing beneficial reuse of recycled water to enhance reliability and reduce independence on imported water.

PRIOR BOARD ACTION

None.

IMPACT ON BUDGET

None.

ATTACHMENTS: RW Policy Principles

Inland Empire Utilities Agency
A MUNICIPAL WATER DISTRICT

RECYCLED WATER POLICY PRINCIPLES

Introduction

The Inland Empire Utilities Agency (IEUA) and its contracting agencies have developed a successful regional Recycled Water Program for both direct use and groundwater recharge. As the Program continues to advance, it is important to summarize the history, operating philosophies, and policy principles on which the Program was founded.

In 2000, the region identified that recycled water use was a critical component in drought-proofing and maintaining its economic growth. With imported water rates increasing and long-term imported supply reliability in decline, the region committed to aggressively and proactively develop local water supplies to offset these impacts. This set the path for the development of a regional recycled water distribution system and a Recycled Water Implementation Plan.

The use of recycled water presented several advantages to the region: it is one of the most significant and underutilized sources of local water supply; it is reliable during drought and climate change conditions; and it requires significantly less energy than imported water to deliver to customers thus reduces greenhouse gas emissions. The development of recycled water is the cornerstone of a larger regional initiative to improve water supply reliability through enhanced local supplies. IEUA, in partnership with its contracting agencies and Chino Basin Watermaster (CBWM), invested over $600 million over the last fifteen years in water recycling, conservation, recharge improvements, the MWD groundwater storage and recovery project, the Chino Desalter, and other water management programs. These programs collectively reduce the region's need for imported water especially during drought or conditions when imported water supplies are not available. In addition to the region switching large potable water users to recycled water, IEUA and CBWM obtained a landmark permit in 2005 for groundwater recharge using IEUA's high-quality recycled water.

By 2007, Southern California was experiencing one of its driest years with the potential for entering an extended drought period. The State of California subsequently made water recycling an important element of California's water supply policy and adopted a statewide goal of achieving 1,000,000 acre-feet (AF) of reuse by 2010. In response, in November 2007 IEUA and its contracting agencies unanimously adopted and committed to implement the Three Year Recycled Water Business Plan which laid out a focused and cost-effective approach to rapidly expand the availability and use of recycled water within IEUA's service area.

By 2014, over $250 million has been invested into the implementation of a robust Recycled Water Program. The region has achieved Program success by leveraging heavily on grant funding and loans. With unanimous regional support, annual recycled water use grew from approximately 5,000 AF in FY 04/05 to over 38,500 AF in FY 13/14. Critical to the economical and efficient operation of the system, each contracting agency made commitments to complete initiatives with the goal to increase direct reuse within their service areas. While some contracting agencies accomplished or far exceeded their local goals, some contracting agencies have not been able to fully achieve their original commitments.

The region's goal to maximize the beneficial use of recycled water has not changed. However, the commitment to connect additional recycled water users has stagnated over the past few years. At this time, several contracting agencies are struggling with the inherent conflict between use in excess of "base entitlement" (as defined by the Regional Sewage Service Contract) and the prioritization of direct use over groundwater recharge. The struggle has led some contracting agencies to be concerned about their local benefit and perceived inequities.

In order to move forward together as a region, it is appropriate that we reevaluate and affirm the regional Recycled Water Policy Principles prior to implementing any remaining significant system improvements to the Recycled Water Program and to clarify how these principles will govern the future benefits received by all IEUA contracting agencies.

Draft Recycled Water Policy Principles

1. **Maximize the beneficial use of recycled water to enhance local water resource availability and reduce reliance on imported water.**
    1. IEUA will continue the development of the Regional Recycled Water infrastructure by providing equitable access for the contracting agencies to achieve reuse of 50,000 AF/year by 2025.
    2. IEUA will pursue the long term acquisition of recycled water from out of service area sources to supplement the regional supply.
    3. IEUA will pursue the long term transfer of recycled water from IEUA service area in exchange for supplemental water supply.
2. **Promote efficient application and use of recycled water as a reliable and fundamental component of drought-proofing the IEUA service area.**
    1. Ensure efficient use of recycled water at the point of use, consistent with rules and expectations of responsible potable water use.
3. **The regional recycled water allocation rights will be based on the following:**
    1. Regional discharge obligations (Santa Ana Judgment, environmental obligations, etc.), will be met first from available RW supply
    2. Contracting agency pro-rata entitlement based on available recycled water supply from 3.1 above
    3. Contracting agency use above entitlement requires the acquisition of replacement water.
4. **The regional recycled water system will be operated based on the following priorities for recycled water deliveries:**
    1. Minimal operational discharges (instrumentation, environmental obligations, etc.)
    2. Contracting agency deliveries
    3. Regional groundwater recharge

5. **Meet peak recycled water direct demands through coordinated demand management of recycled water deliveries.**
    1. Large users will have pressure sustaining valves to ensure that overall regional demands are reliably met.
6. **Maintain a financially viable recycled water program with rates that incentivize use of all available recycled water and that provides funding to achieve full cost-of-service for the recycled water program.**
    1. Set recycled water rates that cover the full cost of Operations & Maintenance (O&M) and Rehabilitation & Replacement (R&R) for the system.
7. **Maximize the use of recycled water capital investments made by IEUA and its contracting agencies with recycled water use within the region.**
    1. Retail contracting agencies shall substantially fulfill prior recycled water connection commitments for all existing infrastructure.
    2. Firm contracting agency commitments for recycled water use will drive new regional investments.

Joint IEUA Board and Regional Policy Committee Workshop Recycled Water Policy Principles

Inland Empire Utilities Agency

A MUNICIPAL WATER DISTRICT

November 4, 2015

Recycled Water (RW) Program

1976
2000
2005
2010

- RW to El Prado Park
- RW to Whispering Lakes & El Prado Golf Course
- Installed distribution system in Chino/Chino Hills
- First Regional Pipeline
- Groundwater recharge with recycled water at Ely Basin
- Recycled Water Feasibility Study (2002)
- Chino Basin Facilities Improvement Project – Recharge (2004)
- Recycled Water Implementation Plan (2005)
- Developed Three Year Business Plan (2007)
- $250M in Capital Invested to Date
- 80 Miles of Regional Infrastructure Installed

RW Program Success

Sound Investments with grant opportunities (27%)

RW Program Cost: $300 M
Grants : $81 M

FY 2004/05:	**5,000 AFY**
FY 2014/15:	**33,420 AFY**
Irrigation/Industrial RW Use:	**22,580 AFY**
Groundwater Recharge:	**10,840 AFY**

FY 2014/15 recycled water accounts for 17% of the water supply for the region

RW Policy Principles

- IEUA began discussions with member agencies in 2012
- Item was presented to the Policy Committee December 2014
- Discussions resumed in July 2015
- Based on member agency feedback, the revised RW Policy Principles are presented for consideration

Recycled Water Policy Principles

1. Maximize beneficial RW use
2. Promote efficient use of RW
3. RW allocation rights
4. RW system operation
5. RW Demand Management
6. Achieve full cost of service
7. Maximize the capital investments

RW Policy Principles

The regional recycled water allocation rights will be based on the following:

1. Regional discharge obligations (Santa Ana Judgment, environmental obligations, etc.), will be met first from available RW supply
2. Contracting agency pro-rata entitlement based on available recycled water supply from 3.1 above
3. Contracting agency use above entitlement requires the acquisition of replacement water

Next Steps

- **January 2016:**
  - Redline of Regional Contract – first draft
- **February 2016: Technical/Policy Committee**
  - Review of Redline Regional Contract
- **April 2016: Technical/Policy Committee Approvals**
  - Regional Contract Recommendation for Approval
- **June 2016: IEUA Board**
  - Adoption of Regional Contract Amendment

IEUA Business Goals

"IEUA is committed to the development and implementation of an integrated water resource management plan that promotes cost-effective, reliable, efficient and sustainable water use along with economic growth within the service area"

Recycled Water: IEUA will support maximizing beneficial reuse of recycled water to enhance reliability and reduce dependence on Imported Water.

Commitment: 50,000 AFY by 2025

Groundwater Recharge: IEUA will maximize all sources of groundwater recharge.

Commitment: Support recharge of all Stormwater, maximize Recycled Water, and pursue purchase and storage of cost-effective Supplemental Water supplies.

Inland Empire Utilities Agency
A MUNICIPAL WATER DISTRICT

Request Regional Policy Committee provide comments and recommendations on RW Policy Principles for IEUA Board consideration and approval