One Water One Watershed

…A United Voice for the Santa Ana River Watershed

Steering Committee Members

Ron Sullivan
SAWPA

Tom Evans
SAWPA

Shawn Nelson
Orange County

Marion Ashley
Riverside County

Curt Hagman
San Bernardino County

Beth Krom
City of Irvine

Ron Loveridge
City of Riverside

Jon Harrison
City of Redlands

Ali Sahabi
Optimum Group

Garry Brown
Orange County CoastKeeper

Linda Ackerman
Regional Water Quality Control Board

NOTICE AND AGENDA
SPECIAL MEETING OF THE

OWOW STEERING COMMITTEE

Thursday, July 7, 2016 – 11:00 a.m.
at SAWPA, 11615 Sterling Avenue, Riverside, CA 92503

AGENDA

1. WELCOME AND INTRODUCTIONS — Ron Sullivan

2. PUBLIC COMMENTS — Ron Sullivan

Members of the public may address the Committee on items within the jurisdiction of the Committee; however, no action may be taken on an item not appearing on the agenda unless the action is otherwise authorized by Government Code §54954.2(b).

3. SEATING OF NEW MEMBERS

A. Seating of City of Redlands Mayor Pro Tem Jon Harrison (SC#2016.3) — Celeste Cantú
Recommendation: Recognize City of Redlands Mayor Pro Tem Jon Harrison as a new member of the OWOW Steering Committee.

B. Seating of Environmental Community Representative (SC#2016.6) — Celeste Cantú
Recommendation: Consider reappointing Mr. Garry Brown to the Environmental Community Representative seat on the OWOW Steering Committee.

C. Seating of Business Community Representative (SC#2016.9) — Celeste Cantú
Recommendation: Consider appointing Mr. Jim Hessler, Director of West Coast Operations for Altman Plants, to the Business Community Representative seat on the OWOW Steering Committee.

4. CONSENT CALENDAR

All matters listed on the Consent Calendar are considered routine and non-controversial and will be acted upon by the Committee by one motion as listed below.

A. Approval of Meeting Minutes: May 28, 2015
Recommendation: Approve as posted.

B. Approval of Meeting Minutes: June 18, 2015
Recommendation: Approve as posted.

5. INFORMATIONAL ITEMS

Recommendation: Receive and file the following oral/written reports/updates.

A. Status Report on the Project Agreement 22 Committee (SC#2016.10) — Mark Norton
Recommendation: Receive and file a report of the Project Agreement 22 Committee activities regarding project implementation and budget.

B. Bureau of Reclamation Basin Study Update Proposal (SC#2016.11) — Mike Antos
Recommendation: Receive and file an update on the Santa Ana Basin Study Update Proposal to the Bureau of Reclamation.

6. NEW BUSINESS

A. Policy Direction Regarding Proposition 1 OWOW Project Eligibility Criteria (SC#2016.12) — Mark Norton
Recommendation: Approve Proposition 1 OWOW grant eligibility criteria as attached.

B. Consideration of the 2016 Chino Basin Storm Water Resources Plan Prepared by the Inland Empire Utilities Agency (SC#2016.8) — Mark Norton
Recommendation: Consider incorporating the 2016 Chino Basin Storm Water Resources Plan into the Santa Ana River Watershed's Integrated Regional Water Management Plan, the One Water One Watershed 2.0 Plan.

7. OLD BUSINESS

None.

8. ADJOURNMENT

Americans with Disabilities Act: Meeting rooms are wheelchair accessible. If you require any special disability related accommodations to participate in this meeting, please contact (951) 354-4230 or kberry@sawpa.org. 48-hour notification prior to the meeting will enable staff to make reasonable arrangements to ensure accessibility to this meeting. Requests should specify the nature of the disability and the type of accommodation requested.

Materials related to an item on this agenda submitted to the Committee after distribution of the agenda packet are available for public inspection during normal business hours at the SAWPA office, 11615 Sterling Avenue, Riverside, and available at www.sawpa.org, subject to staff's ability to post documents prior to the meeting.

Declaration of Posting

I, Kelly Berry, Clerk of the Board of the Santa Ana Watershed Project Authority declare that on Thursday, June 30, 2016, a copy of this agenda has been uploaded to the SAWPA website at www.sawpa.org and posted in SAWPA's office at 11615 Sterling Avenue, Riverside, California.

/s/

_____

Kelly Berry, CMC

2016 OWOW Steering Committee Regular Meetings

(Note: All meetings begin at 11:00 a.m., unless otherwise noted, and are held at SAWPA.)

January 28, 2016
March 24, 2016
~~May 26, 2016~~ [Canceled]
July 7, 2016 [Special]
~~July 28, 2016~~ [Canceled]
September 22, 2016
November 17, 2016*

*Meeting date adjusted due to conflicting holiday.

OWOW STEERING COMMITTEE MEMORANDUM NO. 2016.3

DATE: July 7**,** 2016

TO: OWOW Steering Committee

SUBJECT: Seating of City of Redlands Mayor Pro Tem Jon Harrison as the City Representative from San Bernardino County to the OWOW Steering Committee

PREPARED BY: Celeste Cantú, General Manager

RECOMMENDATION

It is recommended that the OWOW Steering Committee recognize City of Redlands Major Pro Tem Jon Harrison as a new member of the OWOW Steering Committee.

DESCRIPTION

City of Redlands Mayor Pro Tem Jon Harrison replaces outgoing Steering Committee member City of San Bernardino Mayor Patrick Morris. This position on the OWOW Steering Committee reflects the position of an elected official from a City within the County of San Bernardino and must be selected by a majority vote of the San Bernardino Association of Governments (SANBAG).

Mr. Harrison is a Redlands resident since 1983. As the Mayor Pro Tem Harrison and a member of the Redlands City Council since 2001, he currently serves on the Citrus Preservation Commission, Cultural Arts Commission, Historic and Scenic Preservation Commission, Human Relations Commission, Parks and Recreation Advisory Commission, Street Tree Committee and Prospect Park Replanting Ad-Hoc Committee Member.

He is a member of several regional committees such as the Redlands Conservancy Liaison, San Bernardino Area Governments Board and the Santa Ana River Wash Committee. He has served his community by belonging to the Inland Orange Conservancy Board of Directors, Orange Blossom Trail (Rail-Trail) Board of Directors, and the Redlands Community Hospital Foundation Board of Directors.

Mayor Pro Tem Harrison was a senior consultant with ESRI where he has led a variety of GIS implementation projects for over 25 years.

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OWOW STEERING COMMITTEE MEMORANDUM NO. 2016.6

DATE: July 7**,** 2016

TO: OWOW Steering Committee

SUBJECT: Seating of Environmental Community Representative to the OWOW Steering Committee

PREPARED BY: Celeste Cantú, General Manager

RECOMMENDATION
It is recommended that the OWOW Steering Committee consider reappointing Mr. Garry Brown to the Environmental Community Representative seat on the OWOW Steering Committee.

DESCRIPTION
Mr. Brown has served on the OWOW Steering Committee since 2007 and was reappointed in 2011. With the sunset of his second term on the Steering Committee, the Committee should consider filling the Environmental Community Representative position at this time. Staff recommends reappointing Mr. Brown to the Environmental Community Representative seat to the OWOW Steering Committee.

BACKGROUND
Mr. Brown founded Coastkeeper in 1999 and serves as the organization's Executive Director and Board President. Under Mr. Brown's leadership, Coastkeeper has become a powerful voice for water quality, marine habitats, and water supply issues in the region and throughout California. Coastkeeper has achieved numerous milestone successes through collaboration with stakeholders and scientific and legal research as a basis for advocacy.

Mr. Brown comes from a long background of building public-private partnerships. He served for five years as an assistant city manager for the City of Redlands, ten years as an advocate and executive director for trade associations in the real estate and building industries, and served two terms as president of a chamber of commerce. In addition, Coastkeeper has built relationships and partnerships with major corporations and public agencies such as Southern California Edison, San Diego Gas & Electric, The Irvine Company, Walmart, and The Metropolitan Water District for the purpose of demonstrating on the ground projects that enhance water quality and reduce urban runoff.

Mr. Brown holds positions of leadership on numerous Boards of Directors committees, including the California Coastkeeper Alliance, the Nature Reserve of Orange County, OCTA's Environmental Cleanup Allocation Committee, the Community Engagement Panel for the Decommissioning of the San Onofre Nuclear Power Station, the Harbor Safety and Oil Spill Response Committee for the Port of Los Angeles/Long Beach, American Green Power, the California Artificial Reef Enhancement Foundation, and Ocean Defenders Alliance. Mr. Brown holds a B.A. in Government from the University of Redlands.

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OWOW STEERING COMMITTEE MEMORANDUM NO. 2016.9

DATE: July 7, 2016

TO: OWOW Steering Committee

SUBJECT: Seating of Business Community Representative to the OWOW Steering Committee

PREPARED BY: Celeste Cantú, General Manager

RECOMMENDATION

It is recommended that the OWOW Steering Committee consider appointing Mr. Jim Hessler, Director of West Coast Operations for Alman Plants, to the Business Community Representative seat on the OWOW Steering Committee.

DESCRIPTION

Jim Hessler is General Manager for Southern California Operations for Altman Plants. Altman Plants is located within the Santa Ana River Watershed at Lake Mathews. The nursery is 670 acres, making it the largest contiguous nursery site in Southern California. Within those 670 acres there is over 2 million square feet of greenhouse space, 18 acres of shade houses, and over four acres of dock space. The nursey also has over 30 miles of roads that are maintained by the firm, as well as over 100 miles of irrigation systems. The firm's water recycling system will store over 37 acre feet of water and we will recycle and reuse more than 100 million gallons of water each year. Altman Plants currently has approximately 400 employees

Mr. Hessler received his Master of Business Administration from Colorado State University and his Bachelor of Science from California Polytech State University – San Luis Obispo.

SC 2016.9 Business Placement_Hessler

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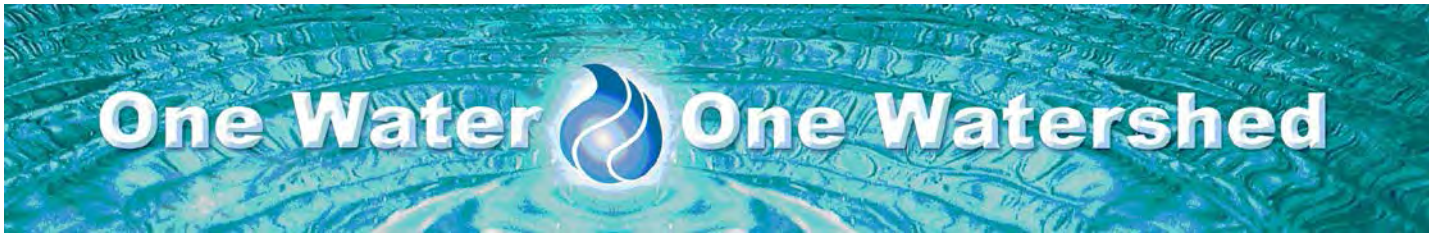

…A United Voice for the Santa Ana River Watershed

OWOW STEERING COMMITTEE

REGULAR MEETING MINUTES

MAY 28, 2015

Committee Members	
Santa Ana Watershed Project Authority Representatives	
Ronald W. Sullivan, Convener, Eastern Municipal Water District	Present
Thomas P. Evans, Western Municipal Water District	Present
County Supervisor Representatives	
Marion Ashley, Riverside County Board of Supervisors	Absent
Shawn Nelson, Orange County Board of Supervisors	Absent
Curt Hagman, San Bernardino County Board of Supervisors	Absent
County Mayor Representatives	
Ron Loveridge, Mayor, City of Riverside	Present
Beth Krom, Mayor, City of Irvine	Present
Patrick Morris, Mayor, City of San Bernardino	Present
Business Committee Representative	
Ali Sahabi, President, Optimum Group, LLC	Present
Environmental Committee Representative	
Garry Brown, President, Orange County Coastkeeper	Absent
Regional Water Quality Control Board Representative	
Linda Ackerman, Vice Chair, Santa Ana Regional Water Quality Control Board	Present
STAFF PRESENT	Celeste Cantú; Larry McKenney; Karen Williams; Mark Norton; Ian Achimore; Kelly Berry

The OWOW Steering Committee meeting was called to order at 11:12 a.m. by Convener Ron Sullivan, at the Santa Ana Watershed Project Authority, 11615 Sterling Ave., Riverside, California.

1. WELCOME AND INTRODUCTIONS

2. PUBLIC COMMENTS

Convener Sullivan called for public comments. There were no public comments.

3. CONSENT CALENDAR

A. APPROVAL OF MEETING MINUTES: APRIL 9, 2015

MOVED, approval of the Consent Calendar.

Result:	**Adopted (Unanimously; 6-0-1)**
Motion/Second:	Evans/Krom
Ayes:	Evans, Krom, Loveridge, Morris, Sahabi, Sullivan
Nays:	None
Abstentions:	Ackerman
Absent:	None

4. INFORMATIONAL ITEMS

Recommendation: Receive and file, unless otherwise stated.

A. Update on State Water Resources Control Board Adoption of Mandatory Water Conservation Regulation

Celeste Cantú provided verbal report, referring to the Media Release contained in the agenda packet beginning on page 9. With the adoption of the Mandatory Water Conservation Regular by the State Water Resources Control Board (SWRCB), every water district and community now has a percentage, ranging from 8% to 36%, by which water consumption must be reduced. Within the Santa Ana River Watershed the range is approximately 20%-36%. These percentages are predicated on 2013 usage. This action underscores our ongoing Emergency Drought Response Program, with the primary goal being to transform how property in California is landscaped. This regulation begins June 1; on July 15 they will announce water consumption figures for the first month. This is an emergency regulation and will thus be in effect for no longer than 270 days; however the SWRCB will examine incorporating ongoing guidance.

Committee Member Loveridge asked for clarification on SAWPA's role in terms of water quality. Cantú noted SAWPA's Emergency Drought Response Program, which includes a cash-for-grass turf removal program geared toward commercial, municipal and large institutional (universities/colleges) property. SAWPA is also assisting retailers in adopting budget based/conservation based rate structures in line with the recent *Capistrano Taxpayers Association, Inc. vs. City of San Juan Capistrano* ruling. SAWPA is also leading a watershed-wide aerial photography project which will provide retailers with timely data relating to customer landscaping and water usage, including evapotranspiration (ET) data.

B. OWOW Update – PA 22 Committee (SC#2015.4)

Larry McKenney provided an oral report on the Project Agreement 22 Committee (PA 22), comprised of the member agency general managers and officially formed for implementing the drought round grant funding under 2014 Prop 84 funding. PA 22 is executing much of what was just mentioned relating to turf removal and budget based rate structures.

Relating to turf removal, PA 22 is working to stay in line to receive as much MET funding for as long as those funds remain available. Given the overwhelming success of MET's turf removal program, the program became oversubscribed and their Board recently took action to provide an additional $350 million to the program and capped future projects as follows: residential projects have a $6,000 per property cap, commercial projects a $25,000 per property cap, and public agency projects a $50,000 cap. PA 22 is addressing the urgency of submitting for project approval in order to utilize MET's $2 per

square foot rebate as the local match required under the grant program funding, which will then provide an addition $1 per square foot in our area. Other avenues of local match funding are being researched should MET's rebate become unavailable. Committee Member Evans emphasized that MET's rebate funding is coming from rate payers and is already in the rate structure, noting other agencies could take the same action as MET and put this in their rate structure.

Mayor Morris asked if there were resources available for those who are not members of MET, for instance San Bernardino. PM-heard nothing in SB of rebate program of any substance; what recourses are available to those not a member of Met. McKenney advised that within the SBVMWD area there will be a total of $3 per square foot available: $1 from SAWPA, $1 from SBMWD and $1 from the water retailer.

Convener Sullivan noted SAWPA's leading role in outreach efforts with two recent workshops geared toward elected officials and district staff within the watershed, which were well received.

C. OWOW 2015 Implementation Schedule

Mark Norton reviewed the implementation timeline on pg 43 of the agenda packet. May 27 at 5:00 p.m. was the deadline for the project submittal process. Responses received will be discussed under upcoming Agenda Item No. 4.D. The pre-review process will now proceed; there is a comment form online available to all stakeholders who which to review and comment on any of the projects. The next step will be a review of the projects by the Project Review Committee (PRC), where interviews will be held June 11 and 12. The project/projects recommended by the PRC will be brought back to the OWOW Steering Committee at the June 18 meeting for consideration and approval.

Following OWOW SC approval, SAWPA staff will prepare and submit the grant application to the DWR by August 7. DWR will then review the applications and provide award announcements by mid-November. This is the tightest DWR timeline thus far.

Similar to previous grant funding rounds, the PRC interviews the project applicants asking on-point questions relative to each project and ensuring project claims are verified.

D. Summary of Project Proposals Received in Response to the Call for Projects, Due May 27, 2015, and Initial Screening Process (SC#2015.5)

Mark Norton provided a PowerPoint presentation and handed out a project information packet for each of the eight projects requesting grant funding. Project submission statistics were as follows:

Total Projects:	80
Plan Only Project*:	72
Grant Request Projects:	8
Number of Agencies	12
Grant Funding Request	$107,416,833
Total Project Costs:	$273,547,000

* Projects seeking to be included in the OWOW Plan, only.

Norton noted the emphasis this year has been on integrated, regional projects.

Projects Requesting Grant Funding			
Agency Names	**Project Name Benefit Area**	**Total Cost**	**Funds Requested**
Lead Agency: SBVMWD **Coop Agencies**: EMWD, IEUA, OCWD, SBVMWD, WMWD, OCC & IEW, IEW	Santa Ana River Conservation & Conjunctive Use Program (SARCCUP) - Phase 1: Watershed-Wide, Water Banking, Water Use Efficiency & Habitat Enhancement Project **Benefit Area**: 2,464 sq miles	$105,092,000	$60,000,000
Lead Agency: RCFCWCD **Coop Agencies**: San Jacinto	San Jacinto River Levee, Stage 4 & River Corridor Expansion Project **Benefit Area**: 111 sq miles	$47,000,000	$35,000,000
Lead Agency: OCSD **Coop Agencies**: Cal-DOT, OCFCD, Anaheim, Fullerton, CSUF, OCWD	Newhope-Placentia Trunk Replacement **Benefit Area**: 421 sq miles	$104,890,000	$5,000,000
Lead Agency: SBCFCD **Coop Agencies**: Highland	Plunge Streambed Restoration and Elder Creek Channel Improvement **Benefit Area**: 2 sq miles	$7,477,000	$3,000,000
Lead Agency: Corona DWP **Coop Agencies**: HGCWD	Corona/Home Gardens Well #3 Local Water and DAC Provision Project **Benefit Area**: 62 sq miles	$2,000,000	$1,500,000
Lead Agency: RCFCWCD **Coop Agencies**: BCVWD	Beaumont MDP Line 16 **Benefit Area**: 50 sq miles	$3,658,000	$1,219,333
Lead Agency: LHMWD **Coop Agencies**: RCFC, Hemet, San Jacinto, RCFB, Soboba, WRCAC, H-SJ WM	Bautista Pond Optimization **Benefit Area**: 161 sq miles	$2,500,000	$1,000,000
Lead Agency: SBCFCD **Coop Agencies**: Yucaipa	Wilson Creek Channel Improvements **Benefit Area**: 3 sq miles	$930,000	$697,500

Committee Member Krom asked if consideration is given to whether or not the project will proceed with or without OWOW grant funding when ranking the projects. McKenney responded the key eligibility criteria are that the project must be executed by active participation of more than one agency and a scoring factor based on the level of benefit per grant dollar rewarding project efficiency. Krom noted her inclination that, if the project is meritorious, consideration should be given to whether or not the project will proceed without OWOW grant funding. Norton provided a verbal summary of the SARCCUP project. A discussion ensued as to the amount of the funds requested and the amount of total funding available, the scalability of projects and whether or not a project could proceed if the total amount requested was not awarded.

6. OLD BUSINESS

None.

7. NEW BUSINESS

A. Project Review Committee Formation and Process (SC#2015.6)

Larry McKenney provided an oral overview of the Project Review Committee Roster and the three proposed finalists: Paul R. Brown, Dr. Kurt Schwabe, and Wyatt L. Truxel. These three were proposed as a result of having worked with the OWOW Pillars to receive their suggestions. It was important to staff and the OWOW Pillars to have a Project Review Committee with current experience in local water resources and issues in the Santa Ana River Watershed having experience with sustainability and resiliency. These three proposed individuals have that experience, as well as complementary expertise in economics.

MOVED, approve the formation of the Project Review Committee and process to review proposals and make a funding recommendation to the OWOW Steering Committee.

Result:	**Adopted (Unanimously; 7-0)**
Motion/Second:	Krom/Evans
Ayes:	Ackerman, Evans, Krom, Loveridge, Morris, Sahabi, Sullivan
Nays:	None
Abstentions:	None
Absent:	None

8. ADJOURNMENT

The meeting was adjourned at 12:16 p.m.

APPROVED: July 7, 2016

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Ronald W. Sullivan, Convener

Attest:

_____

Kelly Berry, CMC
Clerk of the Board

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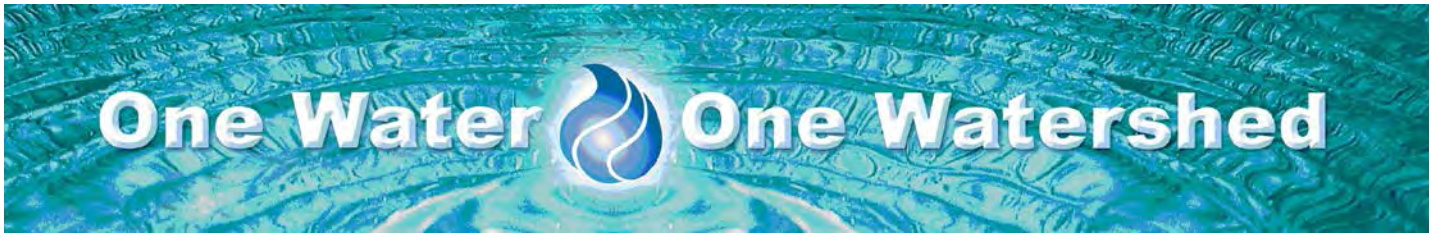

…A United Voice for the Santa Ana River Watershed

OWOW STEERING COMMITTEE

SPECIAL MEETING MINUTES

JUNE 18, 2015

Committee Members	
Santa Ana Watershed Project Authority Representatives	
Ronald W. Sullivan, Convener, Eastern Municipal Water District	Present
Thomas P. Evans, Western Municipal Water District	Present
County Supervisor Representatives	
Marion Ashley, Riverside County Board of Supervisors	Present
Shawn Nelson, Orange County Board of Supervisors	Absent
Curt Hagman, San Bernardino County Board of Supervisors	Present
County Mayor Representatives	
Ron Loveridge, Mayor, City of Riverside	Present
Beth Krom, Mayor, City of Irvine	Present
Patrick Morris, Mayor, City of San Bernardino	Present
Business Committee Representative	
Ali Sahabi, President, Optimum Group, LLC	Present
Environmental Committee Representative	
Garry Brown, President, Orange County Coastkeeper	Present
Regional Water Quality Control Board Representative	
Linda Ackerman, Vice Chair, Santa Ana Regional Water Quality Control Board	Present
STAFF PRESENT	Celeste Cantú; Larry McKenney; Mark Norton; Dean Unger; Kelly Berry

The OWOW Steering Committee meeting was called to order at 11:06 a.m. by Convener Ron Sullivan, at the Santa Ana Watershed Project Authority, 11615 Sterling Ave., Riverside, California.

1. WELCOME AND INTRODUCTIONS

2. PUBLIC COMMENTS

Convener Sullivan called for public comments. There were no public comments.

3. NEW BUSINESS

A. OWOW 2015 Implementation Project Portfolio

Celeste Cantú provided a PowerPoint presentation. This is our fourth and final round of Proposition 84 IRWM funding. After three earlier rounds, the OWOW 2015 Implementation solicitation has raised the bar to achieving a new level of integration for California. The entities recommended for funding analyzed the natural hydrology and pre-existing infrastructure to identify how the water flows from one system to the other. They took steps to identify the problems faced in this watershed, per the OWOW 2.0 Plan, and evaluated why water is not being utilized to its fullest extent as a potable resource and for the environment, their projects achieving both vertical and horizontal integration. The portfolio recommended for funding has been compiled by the Project Review Committee (PRC): Paul R. Brown, Dr. Kurt Schwabe, and Wyatt L. Troxel.

Four project interviews were held, and the following projects were recommended for total grant funding of approximately $61 million:

- $55 million grant funding for the Santa Ana River Conservation & Conjunctive Use Program (SARCCUP);
- $5,054,302 grant funding for the Riverside County Flood Control Integrated Watershed Protection Program; and,
- $1 million grant funding for the Orange County Sanitation District Newhope Placentia Trunk Replacement Project.

These projects will supply watershed-wide benefits including the following. OWOW 2.0 Benefit Tracking: While the projects must be completed within five years of contract execution, performance targets of the goals under the OWOW 2015 Proposals will be tracked through 2035.

- Dry Year Yield: 25,300 AFY
- Water Supply: 18,283 AFY
- Recreation: 40 acres open space; 1 mile trail (San Jacinto Basin area)
- Habitat: 41 acres
- Invasive Plan: 800 acres
- Salt Management: 317,000 lbs/yr
- NPS Pollution: 29,302 lbs/yr
- Flood Risk Reduction: $91M
- GHG: 14,402 metric tons/yr
- Population Benefit: 5.6M
- Benefit Zone: 2.5M sq miles

Staff is also proposing an OWOW 2.0 Plan Amendment augmenting the Plan to add the following:

- OWOW 2015 Implementation Projects
- OWOW 2015 Planning Projects
- OWOW 2014 (Drought) Project
- OWOW Round 2 Replacement Project

Committee Member Evans noted his interest to receive an update on these projects and the three rounds of Proposition 84 IRWM funding awarded earlier – how the money was spent, which projects are complete and progress of the others, celebrating the successes.

MOVED,

1. Authorize implementation of the Proposition 84 2015 Integrated Regional Water Management (IRWM) grant proposal to the Department of Water Resources (DWR) with the proposed OWOW 2015 Implementation integrated project portfolio: (a) $55 million grant funding for the Santa Ana River Conservation and Conjunctive Use Program (SARCCUP); (b) $5,054,302 million grant funding for the Riverside County Flood Control and Water Conservation District (RCFCWCD) integrated and regional water resources program; and, (c) $1 million grant funding for the Newhop-Placentia Trunk Replacement;
2. Require that as part of their grant agreement with SAWPA, the parties that submitted SARCCUP will execute a SAWPA Project Agreement or comparable multilateral long-term conjunctive use operating agreement for all the parties involved in the Program;
3. Require that SARCCUP parties complete a study of the effectiveness of the proposed *Arunda donax* removal and maintenance efforts in terms of an overall goal of eradicating *Arundo donax* from the watershed without changing the budget for that work element;
4. Authorize amending the OWOW 2.0 Plan to include the projects that applied for funding and sought to be included for purposes of other grant eligibility under the OWOW 2015 solicitation, OWOW approved projects under the 2014 OWOW solicitation, and replacement OWOW approved projects under OWOW Round 2; and,
5. Direct staff to forward the OWOW Steering Committee's decision to the SAWPA Commission for ratification.

Result:	**Adopted (Unanimously; 10-0)**
Motion/Second:	Krom/Ashley
Ayes:	Ackerman, Ashley, Brown, Evans, Hagman, Krom, Loveridge, Morris, Sahabi, Sullivan
Nays:	None
Abstentions:	None
Absent:	None

After approval, the question was raised as to how much oversight there will be on what was just approved. Cantú noted that going forward we must monitor for ten years after completion of the project to verify that the represented benefits are in fact realized.

4. ADJOURNMENT

The meeting was adjourned at 11:25 p.m.

APPROVED: July 7, 2016

_____

Ronald W. Sullivan, Convener

Attest:

_____

Kelly Berry, CMC, Clerk of the Board

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OWOW STEERING COMMITTEE MEMORANDUM NO. 2016.10

DATE: July 7, 2016

TO: OWOW Steering Committee

SUBJECT: Status Report on the Project Agreement 22 Committee

PREPARED BY: Mark Norton, Water Resources & Planning Manager

RECOMMENDATION

Receive and file this report of the Project Agreement 22 Committee activities regarding project implementation and budget.

DISCUSSION

The 22nd SAWPA Project Agreement (PA) created a committee that implements the Emergency Drought Grant Program ("Program"). The Program is funded partially by Proposition 84 Integrated Regional Water Management (IRWM) funding granted by the IRWM Regional Water Management Group and provided by the State. The IRWM Regional Water Management Group includes the OWOW Steering Committee and the SAWPA Commission. The PA 22 states that SAWPA staff shall provide a semi-annual report of the PA 22 Committee activities on project implementation and budget

SAWPA is able to fund the Program with Proposition 84 IRWM funding through a Grant Agreement executed with the State on July 20, 2015. Under the Grant Agreement, $12,860,110 is provided in Proposition 84 IRWM grant funding and $10,645,000 is accounted as matching funds (i.e. local funding), for a total Program cost of $23,505,110.

The PA 22 Budget follows the regular SAWPA budget process which budgets for the Committee on a two-year cycle.

The Program that the PA 22 Committee implements includes two projects. The two projects are:

Project 1: Conservation Based Reporting Tools and Rate Structure Implementation. This project includes the following sub-tasks:

- Sub-task: Conservation Based Rate Structure, which involves supporting 5-12 retail water agencies in the Santa Ana River Watershed (SARW) in adopting conservation-based water rates,
- Sub-task: Web Based Water Consumption Reporting, which involves the OmniEarth/Dropcountr consultant team support tool that is available to retail water agencies in the SARW, and

- Sub-task: Aerial Mapping, which involves creating landscape area data by parcels across the SARW and most of the Upper Santa Margarita Watershed (USMW) to the south.

Project 2: High Visibility Turf Removal and Retrofit which involves funding large scale and highly visible turf removal projects located in the SARW and USMW. This work is done by the SAWPA member agencies, the Municipal Water District of Orange County (MWDOC) and Rancho California Water District (RCWD)

As of March 31, 2016, the Committee is within budget. Note the PA 22 Budget follows a two year cycle, while the budget in the Grant Agreement is for the life of the Project. The approved budget is for two years: FYE 2016 and FYE 2017. There is one additional year per the Grant Agreement with the State following the end of FYE 2017 and one year before the Grant Agreement was executed in in FYE 2015. In the Grant Agreement the Program is scheduled to be complete on June 30, 2018, which is the close of FYE 2018 for SAWPA. Revenues from the Proposition 84 IRWM grant and expenses to date of March 31, 2016 are shown below by Project. Note there is no approved budget for FYE 2015 so Actuals are just shown.

Project 1: Conservation Based Reporting Tools and Rate Structure Implementation

Budget Description	FYE 2015 Actuals	FYE 2016 Budget	FYE 16 Jul - Mar Actuals	FYE 2016 Actuals as % of FYE 2016 Budget	FYE 2017 Budget
Total Revenues	N/A	$ 2,229,502	N/A	N/A	$ 2,243,172
Total Expenditures	$ 196,758	N/A	$ 1,587,207	71%	N/A

Project 2: High Visibility Turf Removal and Retrofit

Budget Description	FYE 2015 Actuals	FYE 2016 Budget	FYE 16 Jul - Mar Actuals	FYE 2016 Actuals as % of FYE 2016 Budget	FYE 2017 Budget
Total Revenues	N/A	$ 1,622,500	N/A	N/A	$ 1,622,500
Total Expenditures	$ 309,234	N/A	$ 918,675	57%	N/A

The PA 22 Committee is composed of the general managers of the five SAWPA member agencies. The PA 22 Committee had their first meeting in January, 2015 and their latest in May, 2016. A description of PA 22 Committee activities in FYE 2015 and FYE 2016 per project are provided below.

Project 1: Conservation Based Reporting Tools and Rate Structure Implementation:

- Subtask - Implementation of Conservation-Based Water Rates: The PA 22 approved template contracts that allows SAWPA to reimburse retail water agencies for their rate studies that analyze conservation-based rate structures (also known as budget-based rates). The Committee received letters of interest from 13 agencies. All agencies have executed contracts with SAWPA following PA 22 Committee approval. The contract amounts are up to $215,030 per retail water agency.
- Subtask - Web-Based Water Consumption Reporting and Customer Engagement: The PA 22 Committee approved a Request for Proposal (RFP) developed by SAWPA staff for soliciting support for a technology-based water conservation tool. The consultant team of OmniEarth/DropCountr was chosen and a contract was awarded for $1,500,000. The PA 22 Committee has received ongoing updates from SAWPA staff as well as OmniEarth staff.
- Subtask - Aerial Mapping: The PA 22 Committee approved several RFPs developed by SAWPA staff with three separate consultants that provide the different levels of data acquisition and analysis that creates imagery as well as vegetation classifications at the parcel level. The three consultants are Geophex, Ltd., Statistical Research Inc., and Resource Strategies Inc. The total amount contracted for all three consultants is $735,245. The aerial mapping and measurement work delivery has been prioritized for the agencies seeking to implement budget based water rates under the rates subtask.

Project 2: High Visibility Turf Removal and Retrofit:

- SAWPA staff worked with the PA 22 Committee in FYE 2015 and FYE 2016 to develop a funding allocation process that took into account evapotranspiration rates, population levels and geographic location. SAWPA staff and the PA 22 Committee also worked to define high visibility, the funding threshold for individual projects and what types of projects were defined as benefiting public agencies and homeowner associations. The total amount of Proposition 84 IRWM funding that is available to the SAWPA member agencies, RCWD and MWDOC on a reimbursement basis for projects in their watersheds is $5,272,500.

MATERIALS

None.

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OWOW STEERING COMMITTEE MEMORANDUM NO. 2016.11

DATE: July 7, 2016

TO: OWOW Steering Committee

SUBJECT: Bureau of Reclamation Basin Study Update Proposal

PREPARED BY: Mike Antos, Watershed Manager

RECOMMENDATION

It is recommended that the OWOW Steering Committee receive and file this update on the Santa Ana Basin Study Update Proposal to the Bureau of Reclamation.

DISCUSSION

On June 22, following Commission approval, SAWPA staff submitted a proposal to Bureau of Reclamation (Reclamation) for their assistance updating the 2013 Santa Ana Basin Study, a component of the One Water One Watershed 2.0 Plan. The scope of the proposed cost-share effort will fulfill several new requirements for the OWOW 2.0 Plan instituted by the voters and legislature. The California Department of Water Resources (DWR) released draft Integrated Regional Water Management (IRWM) guidelines in January, with final guidelines expected shortly.

The scope as-proposed includes three primary tasks. First, SAWPA and Reclamation will further analyze and prioritize the projected impacts of climate change modeled in the 2013 Santa Ana Basin Plan. Second, the project will present the data from OWOW 2.0, the Basin Study, and the Basin Study Update to the stakeholders throughout the Santa Ana River Watershed. Third, the effort will fulfill new requirements on OWOW 2.0 associated with, for example, Stormwater Resources Planning, Groundwater Sustainability Planning, and the Disadvantaged Community Involvement Program.

An announcement of Reclamation's funding recommendations is expected by August, 2016. If successful, SAWPA will cost share 50/50 with Reclamation. In-kind support services may also be accounted for within the Plan Update project from retail water agencies, groundwater management agencies, cities, counties, flood control agencies, and recreational and environmental stakeholders throughout the watershed.

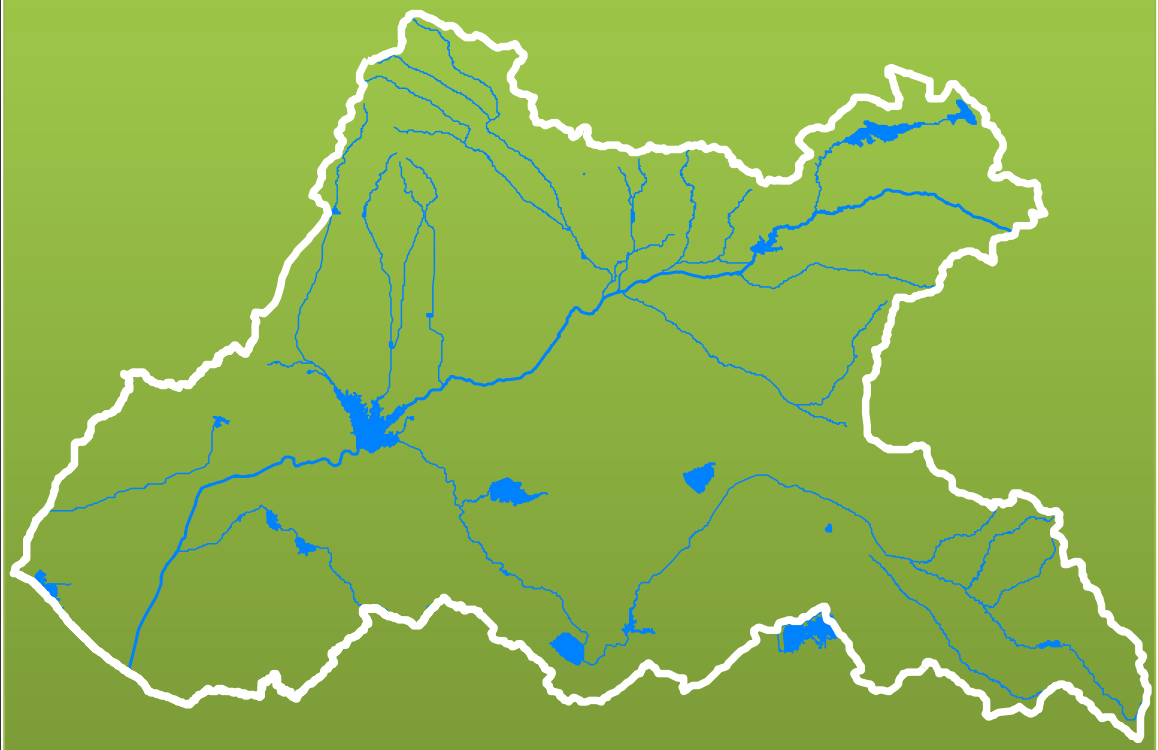
BACKGROUND

Beginning in 2011, SAWPA and Reclamation collaborated on the Santa Ana Basin Plan, which was completed in 2013 and incorporated as part of the 2014 One Water One Watershed 2.0 Plan (OWOW 2.0). OWOW 2.0 meets the state requirements for the IRWM Program, and therefore is prerequisite to receiving IRWM funding through the State. IRWM grant funding has been provided by Proposition 84 that was approved by the California electorate in 2006 and will be provided by Proposition 1 that was approved by the California electorate in 2014.

Attachment:

1. Basin Study Update Proposal to Reclamation

SANTA ANA WATERSHED PROJECT AUTHORITY



Santa Ana Basin

BASIN STUDY UPDATE PROPOSAL

A SUBMITTAL TO THE BUREAU OF RECLAMATION

11615 Sterling Avenue Riverside, California 92503

Santa Ana Basin Study Update Proposal

Table of Contents

Project Title
Santa Ana Basin Study Update

Non-Federal Lead Agency
Santa Ana Watershed Project Authority (SAWPA)

SAWPA Staff Lead
Ian Achimore
Senior Watershed Manager
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Location of Study
The Santa Ana River Watershed (referred to as the "Santa Ana Basin" by the Bureau of Reclamation) is located in southern California.

About Non-Federal Lead Agency

SAWPA is a joint-powers-authority (JPA) located in the Santa Ana River Watershed with five major water resource member agencies: Eastern Municipal Water District, Inland Empire Utilities Agency, Orange County Water District, San Bernardino Valley Municipal Water District and Western Municipal Water District. SAWPA envisions a sustainable and resilient Santa Ana River Watershed that provides water for a high quality of life for all, while maintaining healthy ecosystems and open space opportunities. SAWPA strives to make the Santa Ana Watershed sustainable through fact-based planning and informed decision-making; regional and multi-jurisdictional coordination; and the innovative development of policies, programs, and projects.

SAWPA is the planning lead for the California Integrated Regional Water Management (IRWM) Program in the Santa Ana River Watershed. Designated as the Regional Water Management Group (RWMG) through the California Department of Water Resources (DWR) 2009 IRWM Regional Acceptance Process, SAWPA coordinates with watershed stakeholders to develop plans, projects and programs that implement IRWM program goals. SAWPA developed and administers the Santa Ana River Watershed IRWM governance body, the One Water One Watershed (OWOW) Steering Committee. The OWOW Steering Committee is comprised of eleven members from the three counties in the Santa Ana River Watershed (Orange County, Riverside County and San Bernardino County).

About Previous Watershed Planning Efforts

Beginning in 2011, SAWPA and the Bureau of Reclamation (Reclamation) collaborated on the Santa Ana Basin Plan, which was completed in 2013 and incorporated as part of the 2014 One Water One Watershed 2.0 Plan. The OWOW 2.0 Plan is the Santa Ana River Watershed IRWM Plan, following the guidelines promulgated by the State of California. SAWPA now proposes a Basin Plan Study Update in partnership with Reclamation to, 1) update and spatially analyze the projected impacts of climate change modeled in the original 2013 Santa Ana Basin Plan, 2) present the data from the Basin Study and the Basin Study Update to the stakeholders in the 2,800 square mile basin, and 3) support updates to the OWOW 2.0 plan required by changes in California law.

The 2013 Basin Study was unique because the Santa Ana River Watershed was the first urban setting in which Reclamation conducted its climate change analysis. Since completing the Basin Plan, changes in California state policy, as well as the economy and development patterns of the watershed encourage the need for the proposed update.

SAWPA and the Santa Ana Watershed have a strong legacy of integrated watershed planning, with the first Santa Ana River *Water Resources Plan* in 1998. In November 2010, the OWOW 1.0 Plan was approved by the SAWPA Commission and the subsequent OWOW 2.0 Plan conducted between 2011 and 2013 continued integrated watershed planning for the watershed.

If successful in receiving Reclamation support in updating the OWOW 2.0 plan, the proposed Basin Plan Update will ensure the watershed's future plan incorporates the latest science and data and is compliant with the State of California Proposition 1 Integrated Regional Water Management (IRWM) requirements. Proposition 1 was passed by the California electorate in November 2014 and the DWR released draft planning guidelines in January 2016 that described the new information and analyses that IRWM Plans have to incorporate.

Total Basin Study Update Costs
Through this proposal, $399,000 will be provided by SAWPA and $399,000 would be provided by Reclamation. See the budget on page 19 for further information.

Cost-Share Partners
SAWPA will serve as the 50 percent cost share partner to Reclamation. In kind support services will also be provided by retail water agencies, groundwater management agencies, cities, counties, flood control agencies, recreational and environmental stakeholders throughout the watershed in updating the Plan.

OWOW Coordination Meeting

Reclamation Regional Contact
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(951) 695-5310

2013 Basin Study Background
If awarded, the proposed Basin Study Update will build on the Basin Study begun with Reclamation in 2011 and completed in 2013. Through the 2013 Basin Study, Reclamation and SAWPA completed the following tasks and analyses:

- The *Basin Study Summary Report* helped watershed stakeholders identify data gaps, conduct tradeoff analyses, address the effects of climate change, and develop effective adaptation strategies. It suggested implementation actions for stakeholders that can help reduce energy consumption and ensure California Global Warming Solutions Act of 2006 (Assembly Bill 32) compliance, listed vulnerabilities, identified adaptation strategies, utilized a 'no regrets strategy' analysis that assessed proposed projects and specific adaptation strategies and defined the cost and benefits in terms of productivity, mitigation potential, resilience, and sustainability.
- The *Climate Change Analysis for the Santa Ana River Watershed* (Technical Memorandum No. 1) explained the methods used to develop an analysis of potential implications of the changing climate, and how those implications might affect issues of importance to the Santa Ana River Watershed. It included the development of climate projections, hydrology models using projections for water supply and demand in the Santa Ana River Watershed. Global climate models (GCMs) used in the analysis were downscaled to 12-kilometer grids to make them relevant for regional analysis.
    - The Greenhouse Gas (GHG) Emissions Calculator (Technical Memorandum No. 2) was developed as a tool to support the *Climate Change Analysis for the Santa Ana River Watershed* and to evaluate mitigation strategies. It is a decision-making tool that can be used to explore the links between water resources, energy, and GHG emissions. It can be used to determine water supply and energy demands for the study area, in addition to GHG emissions from 1990 to 2050.
- The *Inland Empire Interceptor Appraisal Analysis* (Technical Memorandum No. 3) assessed rerouting all Inland Empire Brine Line system flows for discharge to the Salton Sea. The appraisal analysis was conducted as an aid in selecting the most economical plan by comparing alternative features. The report analyzed historical Brine Line flow data and forecasting of future flows. It also addressed analysis of available historical data for water quality constituents of the Brine Line flows and forecasting of those constituents in future flows.
- The *Overview of Disadvantaged Communities and Native American Tribes in the Santa Ana River Watershed* provided a brief description of Disadvantaged Communities (DACs) and Native American Indian Tribes located in or near the watershed, and a summary of water and related resource opportunities and challenges facing these entities. The conclusion of the report summarized this information to offer water resources planners a means to examine future opportunities, and follow-up on considerations as they update the OWOW 2.0 Plan and provide recommendations to engage DACs and Tribes in proposed projects.

Basin Study Update Abstract

SAWPA proposes a Basin Plan Study Update in partnership with Reclamation to 1) spatially analyze the projected impacts modeled in the original 2013 Santa Ana Basin Plan, and 2) present the data from the Basin Study and the Basin Study Update to the stakeholders in the 2,800 square mile watershed. Per the DWR IRWM draft guidelines, future IRWM Plans need to include vulnerability assessments by RWMGs and examine vulnerabilities through an IRWM decision-making process in order to 1) prioritize them, and 2) determine the feasibility to address them. The 2013 Basin Study has already analyzed four "key vulnerabilities." These include:

Water Supply
- Insufficient local water supply
- Increased dependence on imported supply
- Inability to meet water demand during droughts
- Shortage in long-term operational water storage capacity

Water Quality
- Poor water quality
- Increased water treatment needs

Flooding
- Increased flash flooding and inland flooding damage
- Increased coastal flooding and inundation of coastal community storm drains
- Damage to coastal community sewer systems from sea level rise

Ecosystem and Habitat
- Damage to coastal ecosystems and habitats
- Adverse impacts to threatened and sensitive species from reduced terrestrial flows and sea level rise

The OWOW 2.0 Plan analysis by OWOW stakeholders and the Reclamation's analysis through the 2013 Basin Study concluded that the Santa Ana River Watershed "is potentially highly sensitive to climate change, with a particular vulnerability to changes in its precipitation, temperature, evapotranspiration, snow water equivalent, and streamflow" (*Basin Study Summary Report*, September 2013).

Reclamation's expertise in the modeling used for the 2013 Basin Study will be of particular value in evaluating vulnerabilities in a spatial context. Understanding how different geographies and both human and non-human populations will be impacted in

different ways by the potential impacts is an important step in planning mitigation and adaptation efforts.

The needs of disadvantaged communities, as defined by the State of California, are a focus of multiple programs in the state and the watershed. In particular, as a component of the IRWM program, the upcoming Disadvantaged Community Involvement Program, will complete a "Strengths and Needs Assessment" in the watershed. This state-funded effort will benefit from the spatial vulnerability assessment requested in this proposal. By understanding how particular climate impacts will provide challenges to particular communities of need, planners and other stakeholders can begin to marshal resources and programs to provide adaptation and mitigation.

Receiving Reclamation assistance to develop a finer spatial resolution on associated vulnerabilities is fundamental to this proposal. Understanding the impacts to different anthropogenic and biological communities from projected changes in climate involves a unique analysis of each community type because these communities are each affected by streamflow, precipitation and air temperature differently. These community-based analyses and the communities' unique impacts from projected changes in climate, can include, but are not limited to:

Water Supply

- Urban Areas: With municipal water demand affected predominately by water rates, water conservation messaging and water conservation participation programs, it is difficult to link demand to future changes in streamflow, precipitation and air temperature because the current trends for those three conditions is not strongly correlated to municipal demand. In order to correlate municipal water demand to climate trends, the analysis would likely first link observed municipal supply to observed climate, and then correlate observed supply levels to observed water rates. Since there was an observed increase in water rates primarily due to the onset of the State Water Resources Control Board's emergency drought regulations in 2015, this analysis would likely be done by analyzing observed municipal demand data in response to supply shortages from the drought.

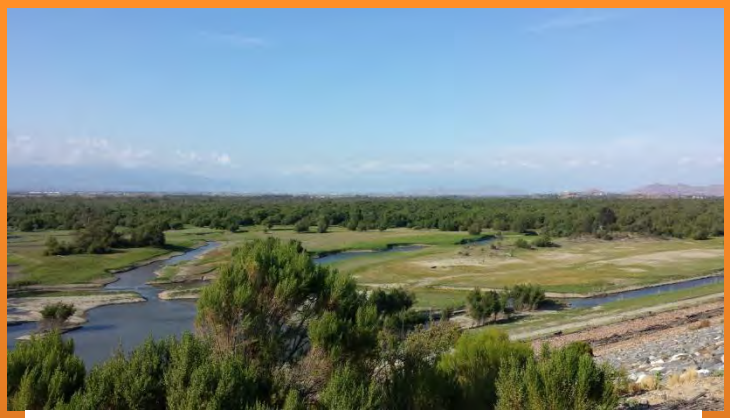
Water Quality

- Total Dissolved Solids in the Watershed: With the projected salt imbalance discussed in the OWOW 2.0 Plan, a relationship of total dissolved solids levels in

the watershed and various factors should be isolated. This analysis was discussed in the OWOW 2.0 Plan and will need to be updated for such variables such as irrigation return flows, recycled water and streambed infiltration. The climate projections from the Basin Study would be included in the updated analysis.

Ecosystem and Habitat

- Prado Basin: With hundreds of acres of wetlands, subtle change in hydrology due to changes in climate can alter wetlands, resulting in a different biotic feedback, contributing methane and carbon dioxide to the atmosphere (Burkett and Kusler, 2007). With observed hydrology data showing water levels in the Prado Basin and likely data for observed atmospheric reading through satellite imagery, an estimation for methane and carbon dioxide emissions could be made using the correlation between the observed hydrology and observed atmospheric data.



View of the Prado Basin from Prado Dam
Prado Basin was modified by a major flood control project in the 1940s, Prado Dam. Today it is an ecosystem of hundreds of acres of wetlands and riparian vegetation.

- Santa Ana Sucker Fish Habitat: The Santa Ana sucker fish has been often observed in the Santa Ana River within the City of Colton in San Bernardino County from the Riverside Avenue crossing of the river upstream to the Rialto Channel river confluence. Understanding the air temperature projections from the Basin Study and correlating that to water temperature projections will highlight the understanding of the future impacts to the Santa Ana sucker. With new fish population data being provided by the Upper Santa Ana River Habitat Conservation Plan, there will be an opportunity to correlate the current relationship between sucker fish presence to observed water temperature, and then estimate future population levels using air temperature projections from the 2013 Basin Study.

The Basin Study Update scope of work would begin with SAWPA and Reclamation working together to identify data sets that are available for these types of community-specific analyses. Once data is gathered, SAWPA and Reclamation would focus on each of the four key vulnerability categories. This would establish a framework for further climate change impacts.

SAWPA will also identify its internal scope of work to augment the Reclamation scope of work. SAWPA will focus on filling the planning and data gaps in the OWOW 2.0 plan created by new State laws, including Stormwater Resources Plans and Groundwater Sustainability Plans (GSPs). Since the OWOW 2.0 Plan was adopted, the Governor has signed Senate Bill 985 that requires storm water resource plans be incorporated into IRWM Plans, and a collection of bills that produced the Sustainable Groundwater Management Act (SGMA). SGMA allows local agencies to customize GSPs to their regional economic and environmental needs. For an OWOW 2.0 update, a local GSP covering a sub-basin of the Santa Ana River Watershed may set extraction limits. Per the DWR's IRWM draft guidelines, the update to the OWOW 2.0 Plan should be consistent with those limits. The OWOW 2.0 update will also have to identify groundwater basins in the Santa Ana River Watershed with or without GSPs and develop a watershed approach for coordinating with those GSPs or lack of GSPs.

Lastly, SAWPA will ensure that the updated OWOW 2.0 Plan reflects the latest water supply and demand projections and recent sub-regional resource plans such as the 2016 Inland Empire Utilities Agency Integrated Resources Plan, 2015 San Bernardino Valley Municipal Water District Upper Santa Ana River Watershed IRWM Plan, and 2014 Orange County Water District Long Term Facilities Plan. Since the OWOW 2.0 Plan covers a large planning area, SAWPA will coordinate the timing of other water and land development plan update cycles with OWOW 2.0 planning updates and incorporate the necessary locations, impacts, existing and future actions to address various water quality contaminants in the watershed in accordance with Assembly Bill 1249. Like Senate Bill 985 which requires that the IRWM Plans address a specific water resources issue, the focus for Assembly Bill 1249 is identifying nitrate, arsenic, perchlorate and/or hexavalent chromium contamination in an IRWM planning area such as the Santa Ana River Watershed.

The Importance of Updating the Basin Study

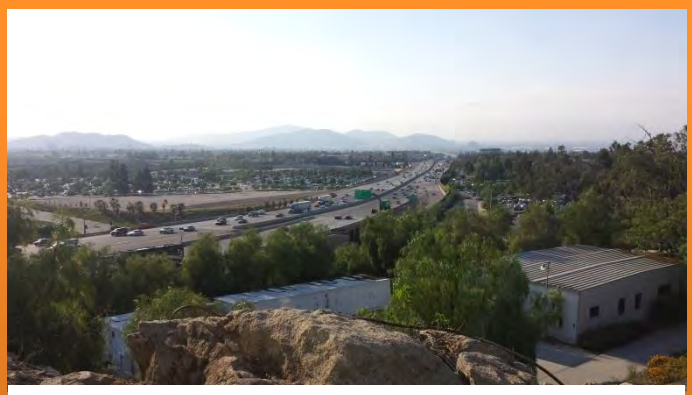
The Basin Study Update will address water imbalances by serving as a screening tool for projects proposed for funding through the OWOW process. The Basin Study Update is important because it supports the Santa Ana River Watershed meeting new IRWM guidelines that require a framework for regional decision making bodies to address vulnerabilities. The IRWM guidelines discuss using the RWMG decision making

process, which would be the OWOW Steering Committee and the SAWPA Commission, to prioritize vulnerabilities and determine the feasibility of addressing them. Once vulnerabilities are prioritized, the RWMG can incorporate strategies to eliminate or minimize vulnerabilities. Project and programs would then likely be proposed to the OWOW Steering Committee and SAWPA Commission from the stakeholders and an analysis by SAWPA staff would subsequently be done to see which projects and programs eliminate or minimize the identified vulnerabilities.

The community-based spatial analysis in the proposed Basin Study Update would also serve as a useful resource for planners in other sectors (urban planning, transportation, open space management, etc.) who are developing projects and programs. Planners and decision makers can use data sets produced as part of the Basin Study and the Basin Study Update and build upon them using data from their sector. This Study would directly help, for example, managers in the Prado Wetlands, but would also create an analysis framework for a wetland manager in another part of the watershed to scope a study for the wetlands they manage.

The Extent and Consequences of Existing or Anticipated Imbalances in Water Supply and Demand

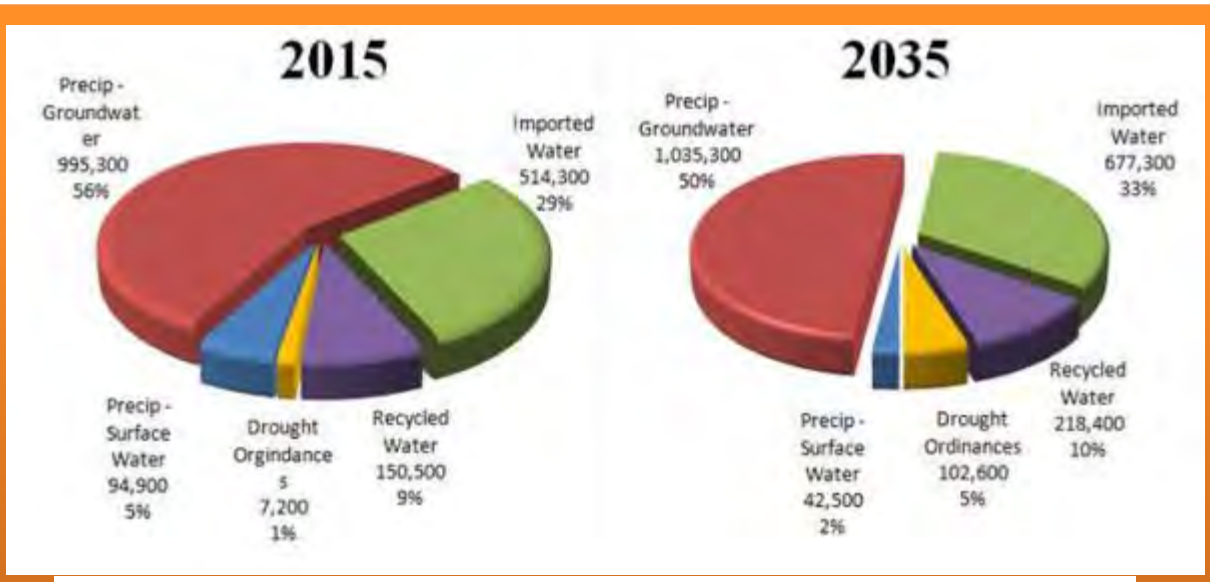
Based on the OWOW 2.0 Plan analysis by OWOW stakeholders and Reclamation's analysis through the 2013 Basin Study, it was concluded that the Santa Ana River Watershed "is potentially highly sensitive to climate change, with a particular vulnerability to changes in its precipitation, temperature, evapotranspiration, snow water equivalent, and streamflow." Under the integrated water resource planning approach, evaluations have been conducted in ten major water resource management areas covering the following areas: 1) water supply reliability, 2) water recycling, 3) water quality improvement, 4) water use efficiency, 5) water and land use, 6) flood risk management, 7) environment and habitat enhancement, 8) parks, recreation and open space, 9) climate change, and 10) environmental justice. The current conditions were considered; threats, weaknesses, strengths, and opportunities were examined, and strategies were defined to improve



View of Highway 60 in Riverside County
According to the Public Policy Institute of California, projections indicate that the Inland Empire will be one of the fastest growing regions in the State.

resources. From these evaluations, the imbalances in several arenas, including water supply and water quality, became readily apparent.

Existing supplies in the watershed are provided by groundwater, surface water, imported water, recycled water and local precipitation. The 2015 supply portfolio for

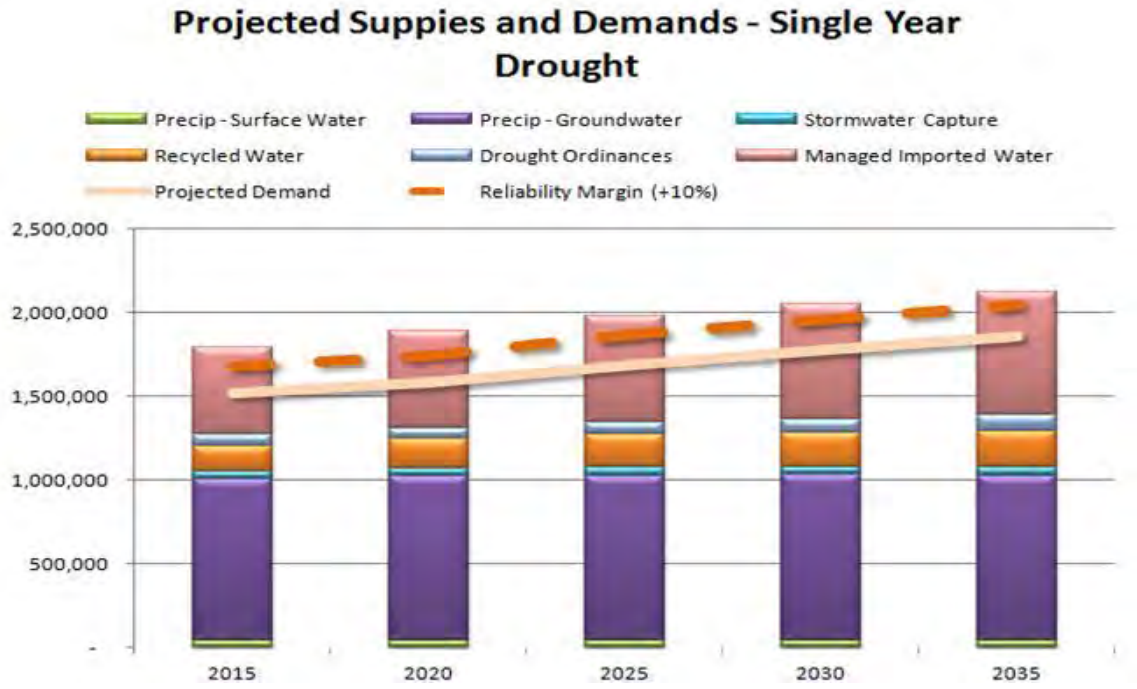


Summary of Water Supplies from the OWOW 2.0 Plan

the entire Santa Ana River Watershed is shown in the pie chart above. Projected supplies for 2035 were also included in the Plan. Both sets of data were developed by aggregating the 2010 California Urban Water Management Plan data and other subregional water planning from the approximately 70 retail water agencies in the watershed. Local precipitation presently meets about 60 percent of the demand and, due to increasing demand over time, is projected to meet about 50 percent of the demand in 2035. Overall recycled water currently represents the third largest water supply source to the watershed, accounting for approximately 20 percent of total water demands.

Existing supply and demand has largely been in balance across the Santa Ana River Watershed due to the management of groundwater basins, management of imported water, implementation of conservation programs and investments in recycled water. The reduction in imported water from the State Water Project has led to drawing down on reserves in groundwater in some places in the watershed. The State Water Project's allocation to its water users (known as "water contractors") was 20 percent of the contractors' request for 2015, 5 percent of the contractors' request for 2014, and 35 percent of contractors' request for 2013.

For projecting future imbalances, the 2013 Basin Study utilized a supply and demand analysis for the Santa Ana River Watershed. The VIC routing model was used to develop routed streamflow at the 36 gage locations throughout the Santa Ana River Watershed. Using information from watershed stakeholders, water demand was estimated using population projections and per capita water use. The analysis found that by 2035 water demand was to increase by approximately 460 thousand acre feet per year from 2013 levels, an increase of about 26 percent. By integrating the climate, hydrology and population data, the OWOW 2.0 Plan projected that supply will meet demand through a single year drought with a reliability margin of 11 percent in 2035. Although the watershed as a whole will be able to make it through single year droughts, there are some agencies that are projected to experience shortfalls. One water agency was projected to have a shortage of 27 thousand acre feet in a single year of drought.



Given the changes projected in precipitation and temperature, according to the Basin Study a water shortage worse than the 1977 drought could occur one out of every six to eight years by the middle of the 21st century and one out of every two to four years by the end of 21st century. Additionally, the State is currently requiring a three-year drought planning framework, to which most agencies are providing a response by June 2016. With 2015 Urban Water Management Plans becoming available, and per-agency assessments of supply through the next three years, a wealth of new data is available

for strengthening the supply and demand forecast. With the continuing Colorado River drought, recent declines in the State Water Project allocations and the onset of new drought requirements from the State, it is imperative for the watershed to focus on balances between water supply and demand that take into account the entire watershed's supply portfolio.

The Extent to Which the Proposal Describes and Provides Support for the Study Proponent's Ability to Address the Following Elements of a Basin Study Update within the Timeframe Required

The work done under the following four elements that were a part of the 2013 Basin Study will serve as a foundation for the Basin Study Update:

- Projections of water supply and demand within the basin, including an assessment of risks to the water supply relating to climate change as defined in section 9503(b)(2) of the SECURE Water Act.
- Analysis of how existing water and power infrastructure and operations will perform in the face of changing water realities, such as population increases and climate change, as well as other impacts identified within section 9503(b)(3) of the SECURE Water Act as appropriate.
- Development of appropriate adaptation and mitigation strategies to meet future water demands.
- A trade-off analysis of the strategies identified and findings as appropriate, including an analysis of all proposed alternatives in terms of their relative cost, environmental impact, risk (probability of not accomplishing the desired/expected outcome), stakeholder response, or other attributes common to the alternatives.

As described in the above section, water supply and demand through 2035 has been projected through the previous Basin Study and the OWOW 2.0 Plan. As shown in the bar graph in the previous section, the assessment of the risk that water demand will outpace supply at the watershed level is 11 percent in 2035, though some agencies are projected to individually see imbalances between demand and supply.

An analysis of existing water and power operations was included in the 2013 Basin Study that examined demand management and possible adaptive strategies. The Basin Study determined that in order to reach the GHG emissions target set by Assembly Bill 32 for 2020, a reduction of GHG emissions by approximately 30 percent is required from a "no action" scenario. Reclamation developed the GHG Emissions Calculator to evaluate mitigation strategies. The 2013 Basin Study also included a trade-off analysis to assess the various climate change adaptation strategies noted in the OWOW 2.0 Plan.

Nine adaptation strategies were cross-referenced with the four key vulnerabilities to determine the number and type of climate change vulnerabilities that can be addressed. As a follow up to that analysis, a "no-regrets" strategy analysis was conducted whereby identifying actions that would provide benefits in the present while also reducing vulnerability to future climate change impacts.

The four elements will be built upon in the Basin Study Update by focusing on the specific issues related to these four key vulnerabilities. For the 2013 Basin Study, the watershed has looked at the cost associated with implementation of the strategies and the relative risk associated with such implementation through the "no-regrets" strategy.

The Strength of Any Nexus between the Basin Study Update and a Reclamation Project or Activity

This southern California watershed relies on water imported from another basin through Metropolitan Water District of Southern California's Colorado River Aqueduct (CRA). Reclamation and seven basin states manage the Colorado River (CR) system under the authority of the Secretary of the Interior and for the benefit of seven "basin states." Approximately 30 percent of the Santa Ana River Watershed relies on imported water, which is provided by the CR Supply as well as the State Water Project which is managed by the DWR.

There are also multiple major groundwater basins within Metropolitan Water District of Southern California service area and the Santa Ana River Watershed. Coordination and cooperation are vital with Reclamation as both parties explore groundwater recharge and reuse opportunities. Additionally, SAWPA has worked closely with Reclamation on several major regional studies over the past decade.

As a funding partner, SAWPA has entered into several agreements with Reclamation in these past studies:

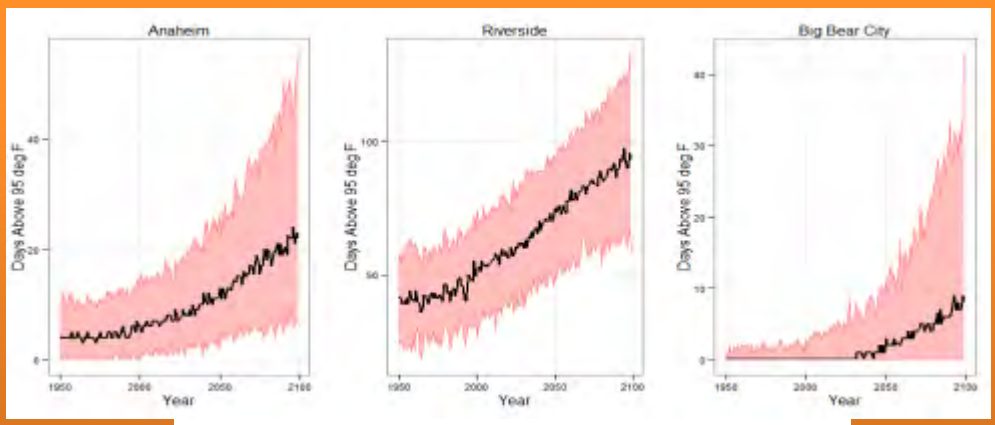
- *Southern California Comprehensive Water Reclamation and Reuse Study*, Prepared by CH2M Hill for US Bureau of Reclamation and 8 regional partners, including SAWPA, July 2002
- *Southern California Water Recycling Initiative*, Prepared by CH2M Hill for US Bureau of Reclamation and 12 regional partners, including SAWPA, July 2006
- *Southern California Regional Brine Concentrate Management Study*, Prepared by CH2M Hill for Reclamation and 15 regional partners, including SAWPA, October 2009
- *Santa Ana River Watershed LiDAR/Infrared Imagery Landscape Mapping Demonstration Project Final Report* prepared by SAWPA, October 2015

Multiple Federal projects funded through the Reclamation's Title XVI Program and American Recovery and Reinvestment Act of 2009 funding are also located in the Santa Ana River Watershed and within the SAWPA member agencies' service areas. For example, Reclamation's Title XVI Program funding combined with IRWM funding through SAWPA provided sufficient revenue for the construction of the largest water recycling project west of the Mississippi River - the Orange County Water District Groundwater Replenishment System.

The Availability and Quality of Existing Data and Models Applicable to the Proposed Basin Study Update

The following data and models will be used for the study:

- SAWPA's water demand and supply analysis contained in Chapter 5.4 of the OWOW 2.0 Plan and the 2013 Basin Study.



Data from 2013 Santa Ana Basin Study
Projected annual number of days above 95°F in the watershed.

- Surface water hydrology and air temperature projections developed by Reclamation in its *Climate Change Analysis for the Santa Ana River Watershed* using the VIC model.
- Future water supply analyzed using the downscaled GCMs.
- Data available for the community-based analyses such as atmospheric data from remote sensing, municipal water use data from retail water agencies, fish population data from water agencies, etc.
- The qualitative data assembled by Reclamation in the 2013 Basin Study for examining demand management and possible adaptive strategies to climate change.

High-quality data and effective water demand and supply projection modeling are contained in the following reports, which served as the basis for past analyses. The

potential effects on water supply and demand due to climate change and variability also were analyzed with evaluation of localized climate change impacts in the watershed, working with the Rand Corporation and State experts. The results of these analyses are referenced as follows:

- *Presenting Uncertainty About Climate Change to Water Resource Managers, A Summary of Workshops with the Inland Empire Utilities Agency*, Rand Corporation 2008
- *Presentation of Uncertainty About Climate Change Modeling to SAWPA area*, Presentation, Rand Corporation 2008
- *Water Resources Plan*, SAWPA Planning Department, June 1998, Chapter 6.9-Climate Change

New models will not need to be developed; instead, an analysis that isolates the relationship between two parameters, such as air temperature levels (that were projected in the 2013 Basin Study) and fish population levels, will need to be implemented. The scope will include finding a relationship between two sets of observed data, such as air temperature and fish population. Using the forecasted air temperature levels from the 2013 study and the relationship between observed air temperature and observed fish population levels, the Basin Study Update will be able to forecast future fish population levels.

The Level of Support for the Basin Study Update and Diversity of Stakeholder that Will Be Involved

OWOW Coordination Meeting

The OWOW process, at its core, is driven by the watershed approach, and the strong engagement of stakeholders. This truth is revealed in the "bottom-up" approach of the OWOW 2.0 planning effort and the 2013 Basin Study. By encouraging participation from different groups of people and those holding varying viewpoints from throughout the watershed, the capacity to reach larger numbers of stakeholders also grew. This process will continue with the Basin Study Update. SAWPA staff has begun extensive outreach on the proposal to some of the water agencies in the watershed such as the flood control districts and wholesale water agencies. The upcoming Disadvantaged Community Involvement Program will extend the process to communities previously disengaged from watershed planning. The stakeholder engagement will continue throughout the process as the main goal of the Study is to produce an analysis that can be used by agencies and organizations throughout the watershed such as those interested in water quality, water supply, flood control,

greenhouse gas emissions, ecosystem health, tribal water rights, urban communities, rural communities, etc.

The Extent to Which the Proposed Basin Study Update Will Employ an Integrated Watershed Planning and Management Approach

The Basin Study Update will employ an integrated watershed approach by considering the relationship between different elements such as flood control and ecosystems as they are impacted by changes in climate that have been projected in the 2013 Basin Study. When implementing each of the analyses for the four key vulnerabilities, such as ecosystem health, the Basin Study Update will consider how the observed data have driven changes in the other parts of the watershed, such as water quality, flood control and urban water demand. Many relationships will be driven by hydrology, as water flows from the upper watershed to the lower watershed. A new awareness of relationships between water and land use agencies, and the role of transportation infrastructure on water resources must be brought inside watershed planning efforts, and the OWOW 2.0 plan update will be supported in this effort by the Basin Study Update. The integrated approach used during the 2013 Basin Study will support these new inclusions through the Basin Study Update process.

Basin Study Update Outline

The Basin Study Update outline is provided below by task. Each task will have a set of deliverables.

<u>Task 1: Data Gathering and Collaborative Stakeholder Engagement</u>

Sub-Task 1a: Review and update 2013 Basin Study data sources and data analyses as needed.

Sub-Task 1b: Collaborate with stakeholders to identify which community-based analyses would be most beneficial to their individual planning processes.

Sub-Task 1c: Work with stakeholders to identify data sets available for the community-based analyses while striving for at least one community per each of the four key vulnerabilities from climate change. Once identified create finalized plan of study.

Sub-Task 1d: Finalize MOU with Reclamation with plan of study.

Task 1 Deliverables: Finalized Plan of Study, MOU between Reclamation and SAWPA.

<u>Task 2: Modeling and Analysis</u>

Sub-Task 2a: Find the relationship between observed climate data, such as temperature, and observed data of interest for the community based analyses.

Sub-Task 2b: Use climate projections from the 2013 Basin Study, such as temperature, to project the values for the data of interest for the community based analyses. Use the

observed data relationship that was extracted as part of Sub-Task 2a to project data values.
Sub-Task 2c: Perform an integrated watershed analysis of the outcomes projected from the community based analyses by finding interconnections due to hydrology, infrastructure, climate, etc.
Sub-Task 2d: Perform a spatial analysis of impacts projected under the 2013 Basin Study and the Basin Study Update to understand where in the watershed specific vulnerabilities should be addressed in planning and project implementation.
Sub-Task 2e: Perform an analysis where the four key vulnerabilities are ranked to the best extent possible by highlighting the magnitude of the projected impacts and the amount of stakeholders in the watershed that are affected such as urban communities, rural communities, tribal entities, water agencies, flood control agencies, etc.

Task 2 Deliverables: Modeling results and data summaries for the community based analyses, integrated watershed analysis of the projected impacts, ranking of the key vulnerabilities from 2013 Basin Study using the information generated as part of the Basin Study Update.

Task 3: Coordinate Planning on a Watershed Scale
Sub-Task 3a: Conduct an integrated gap analysis for the watershed to support stormwater resources planning and groundwater sustainability planning.
Sub-Task 3b: Develop a watershed approach for coordinating with the sub-basins that are not implementing stormwater resources plans and/or groundwater sustainability plans.
Sub-Task 3c: Coordinate the timing of other water and land use plan update cycles with OWOW 2.0 planning updates.
Sub-Task 3d: Incorporate the necessary locations, impacts, existing and future actions to address various water quality contaminants of nitrate, arsenic, perchlorate and/or hexavalent chromium contamination in the watershed in accordance with Assembly Bill 1249.
Sub-Task 3e: Ensure the updated OWOW 2.0 Plan reflects the latest water supply and demand projections and recent sub-regional resource plans such as the 2016 Inland Empire Utilities Agency Integrated Resources Plan, 2015 San Bernardino Valley Municipal Water District Upper Santa Ana River Watershed IRWM Plan, etc.

Task 3 Deliverables: Gap analysis for stormwater resources and groundwater sustainability planning, watershed coordination framework for implementing stormwater resource plans and/or groundwater sustainability plans, framework for supporting related planning cycles in the watershed, water quality analysis, updates to water supply and demand projections.

Task 4: Stakeholder Engagement (Outreach)
Sub-Task 4a: Create an engagement plan and/or tools so the process and results of the Basin Study Update are accessible to diverse stakeholders across the watershed.
Sub-Task 4b: Share the OWOW 2.0 plan update and the Basin Study Update with diverse stakeholders and entities across the watershed.

Task 4 Deliverables: Engagement plan and/or tools, sign-in sheets and/or agendas for engagement events.

Basin Study Update Costs and Task Leads

The budget is provided below. Also shown is which agency will be the lead and provide the funding for each task (by percentage).

Basin Study Update Budget

Task	Task Description	Cost	SAWPA Share	Reclamation Share
1	Data Gathering and Collaborative Outreach	$ 58,000	60%	40%
1a	Review and update	$ 20,000	40%	60%
1b	Collaborate with stakeholders	$ 15,000	100%	0%
1c	Identify data sets available	$ 20,000	50%	50%
1d	Finalize MOU	$ 3,000	50%	50%
2	Modeling and Analysis	$ 548,000	59%	41%
2a	Find the relationship between data	$ 250,000	5%	95%
2b	Use climate projections from Basin Study	$ 135,000	5%	95%
2c	Perform an integrated watershed analysis	$ 18,000	95%	5%
2d	Perform vulnerabilities analysis	$ 130,000	95%	5%
2e	Rank vulnerabilities	$ 15,000	95%	5%
3	Coordinate Planning on a Watershed Scale	$ 157,000	100%	0%
3a	Conduct an integrated gap analysis	$ 80,000	100%	0%
3b	Develop a watershed approach	$ 50,000	100%	0%
3c	Coordinate planning cycles	$ 10,000	100%	0%
3d	Coordinate water quality analysis	$ 5,000	100%	0%
3e	Coordinate water supply/demand analysis	$ 12,000	100%	0%
4	Stakeholder Engagement (Outreach)	$ 35,000	95%	5%
4a	Create Outreach Plan	$ 5,000	95%	5%
4b	Share Basin Study Update results	$ 30,000	95%	5%
Total		$ 798,000	n/a	n/a
	SAWPA Share	$ 399,000		
	Reclamation Share	$ 399,000		

Basin Study Update Schedule

The Basin Study Update schedule is provided below by task.

Basin Study Update Schedule

Task	Task Description	2017				2018			
		Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4
1	Data Gathering and Collaborative Outreach								
1a	Review and update								
1b	Collaborate with stakeholders								
1c	Identify data sets available								
1d	Finalize MOU								
2	Modeling and Analysis								
2a	Find the relationship between data								
2b	Use climate projections from Basin Study								
2c	Perform an integrated watershed analysis								
2d	Perform vulnerabilities analysis								
2e	Rank vulnerabilities								
3	Coordinate Planning on a Watershed Scale								
3a	Conduct an integrated gap analysis								
3b	Develop a watershed approach								
3c	Coordinate planning cycles								
3d	Coordinate water quality analysis								
3e	Coordinate water supply/demand analysis								
4	Stakeholder Engagement (Outreach)								
4a	Create Outreach Plan								
4b	Share Basin Study Update results								
Total									

OWOW STEERING COMMITTEE MEMORANDUM NO. 2016.12

DATE: July 7**,** 2016

TO: OWOW Steering Committee

SUBJECT: Policy Direction Regarding Proposition 1 OWOW Project Eligibility Criteria

RECOMMENDATION
It is recommended that the OWOW Steering Committee approve Proposition 1 OWOW grant eligibility criteria as attached.

BACKGROUND

Integrated Regional Water Management (IRWM) Plans must meet requirements established by statute beginning at Cal. Water Code Section 10530. In implementing the law, the California Department of Water Resources defines IRWM as "a collaborative effort to identify and implement water management solutions on a regional scale that increase regional self-reliance, reduce conflict, and manage water to concurrently achieve social, environmental, and economic objectives. " DWR further notes that IRWM:

> "is a collaborative effort to manage all aspects of water resources in a region. IRWM crosses jurisdictional, watershed, and political boundaries; involves multiple agencies, stakeholders, individuals, and groups; and attempts to address the issues and differing perspectives of all the entities involved through mutually beneficial solutions."

Thus, the IRWM Plan should consider the watershed as a physical system and seek to address water supply, water quality, habitat, flood risk, other water resources issues. The State has also directed IRWM Plans to address societal challenges such as water resources issues affecting disadvantaged or economically challenged communities.

The State's IRWM program grew out of SAWPA's success in including funding for the prototype Southern California Integrated Watershed Program in the Proposition 13 Water Bond of 2000.

DWR implements IRWM Grant Programs to support the IRWM approach. The IRWM Grant Programs have historically been funded from State bond issuances pursuant to Propositions 13, 50, and 84. There is an IRWM program category of funding in Proposition 1 for $510 million.

At the moment, the first round of Proposition 1 IRWM Grant Program funding is focused on increasing the capacity for involvement in the IRWM process by disadvantaged communities, and on completing IRWM Plans in regions whose Plans still need improvement. DWR anticipates a further round of Proposition 1 IRWM grants, aimed at funding projects to implement IRWM Plans, later in 2017. The Santa Ana region expects ultimately to have approximately $50 million in grant funding available for that implementation grants. The State's draft 2016 Integrated Regional Water

Management Grant Program Guidelines (the Guidelines) for Proposition 1 grants would require a local match of at least 50 percent of a project's total cost.

Proposition 1 departed from previous categorical funding approaches used in Propositions 50 and 84, which had more substantial funding for IRWM. Proposition 1 instead created separate categories of grant funding for specific types of water projects, such as water use efficiency, stormwater capture, groundwater, and recycling. This approach reinforced the idea that the IRWM funding in the measure was aimed at something other than specific kinds of water projects, focusing instead on the value of IRWM itself, and that the IRWM funding category is to incentivize collaboration.

Throughout the life of the IRWM Program, SAWPA has consistently maintained that IRWM grants should not be viewed as a way to obtain grant funds to implement single focus or single agency projects that were already in agencies' plans. Rather the IRWM grants have offered an incentive to engage in more regional, multi-party thinking and planning, to achieve the goals DWR described above. (SAWPA does ensure that the OWOW Plan provides needed support for non-IRWM projects to be eligible and competitive for other categories of State funding.)

The approved OWOW 2.0 Plan includes the IRWM concept of a collaborative and holistic, watershed-scale approach throughout the entire plan. The Plan also articulates specific goals to "improve regional integration and coordination" and to "accomplish effective, equitable and collaborative integrated watershed management."

Through five previous rounds of State IRWM implementation grant funding, SAWPA has given effect to the IRWM concept by calling for projects from stakeholders and by using a project selection process that encourages integrated and regional strategies. SAWPA's efforts included the development of strawman regional project concepts to exemplify the kinds of projects that reflect IRWM goals. But SAWPA has not tried to develop its own "master" projects because, even if such projects might be well conceived and truly regional, that approach would undermine the IRWM goal of promoting regional coordination among stakeholders.

SAWPA's success in promoting the IRWM concept through the project selection process has improved through time, as would be expected. DWR's Guidelines note, "Often times, an IRWM Plan in early development stages may focus on just getting project solicitations implemented and producing a project list. Regional Water Management Groups are encouraged to go further …."

In the early rounds of IRWM grant funding, SAWPA approved grants for projects that were good projects, but not as integrated or regional as we would have liked, because those were the best projects submitted. Continued outreach and education, and evolving project selection criteria, brought SAWPA to the point with the 2015 Round of Proposition 84 IRWM Implementation Grant funding of receiving a relatively small number of project submittals, and being able to select truly watershed-wide projects, like the Santa Ana River Conservation and Conjunctive Use Program.

Throughout this decade-long process, there has been extensive stakeholder involvement and discussion, as well as criticism. One example was the Steering Committee's direction in one funding round to include an eligibility requirement for water retailers to have conservation-based rate structures, which resulted in vigorous public debate that resulted in that criterion being removed.

More recently, some stakeholders in Orange County have suggested that IRWM grant funding could be divided up within the region, considering factors such as population. This approach would be at odds both with DWR guidance and the adopted OWOW 2.0 Plan. It was discussed in a meeting between Orange County representatives and SAWPA, and by agreement is not being pursued. Those discussions also produced a suggestion that grant eligibility requirements should include that grant-funded projects should benefit the watershed generally and not injure others. Staff agrees that this approach is important and believes that the concept is included in Attachment 1. SAWPA also intends to further address this issue in the next OWOW Plan update.

In the most recent IRWM Implementation Grant round, in 2015, stakeholders met and developed the eligibility and ranking criteria over a four month period that were ultimately recommended to the Steering Committee and approved. Those criteria fully incorporated the IRWM concepts of regionality, integration, and collaboration. In particular, the idea of requiring that a project produce benefits in the entire watershed, and not injure other parties, was extensively debated by stakeholders.

Looking ahead to the Proposition 1 IRWM Grant Program, DWR's Guidelines include four State Program Preferences:

- Greatest funding leverage
- Innovative technology or practices
- Implement plans with greater watershed coverage
- Multiple-benefit projects

In addition, the Guidelines include State Priorities related to implementing the California Water Action Plan through strategies including conservation, self-reliance, program integration, improved groundwater management, and increased flood protection, among others. The Guidelines would make promoting State priorities an eligibility requirement for State funding. The Guidelines also require IRWM Plans to include "processes that provide opportunities to develop and foster integration." Staff believes that well-crafted project eligibility criteria serve that purpose.

Staff recommends the Steering Committee establish IRWM grant eligibility criteria for OWOW that are based on the criteria approved in 2015. Attachment 1 is a statement of criteria that is slightly modified from 2015. The requirement that a project provide regional benefits is slightly modified to clarify that a significant sub-area of a watershed should be hydrologically defined. Staff has considered recommending that projects be eligible only if they benefit an entire watershed, but because of the hydrologic complexities presented by the size of the Santa Ana River watershed, the human alterations to hydrology in the watershed, and the differences between surface and groundwater basin geography, we are recommending that the eligibility standard still allow project

proponents to apply based on benefits to a significant subwatershed within the region. Eligible projects will still need to compete with each other, and staff expects to address this issue further in the project ranking factors that will be developed with stakeholder input for specific funding rounds, where we would expect projects that create more benefits per grant dollar spent to be more competitive.

Approving these eligibility criteria now will allow the stakeholders, and SAWPA staff, to focus efforts on the improvement of regional coordination and the development of truly regional projects, rather than rehashing the basic premise of IRWM grant funding.

The OWOW governance structure makes the Steering Committee responsible for assembling a suite of recommended projects for each funding opportunity. Therefore, adopting eligibility criteria is a Steering Committee function. DWR requires stakeholder involvement in the IRWM program, but the recommended approach is consistent with DWR requirements and the OWOW 2.0 Plan. Moreover, the recommendation reflects SAWPA's continuing leadership in the IRWM arena, meeting and exceeding DWR expectations in order to create the greatest benefit to the Santa Ana region.

Attachment:

1. Draft OWOW Proposition 1 IRWM Grant Project Eligibility Criteria

SC 20165.12 OWOW Project Eligibility Criteria

OWOW Proposition 1 IRWM Grant Project Eligibility Criteria

D R A F T

Applicants would be required to describe how the project:

Applicant meets all statutory requirements, as was the case in all prior rounds, including grant recipient eligibility and project eligibility, including:

- IRWM region acceptance through the Regional Acceptance Process (SAWPA has complied)
- Project must be consistent with the OWOW Plan
- Project proponents must adopt the OWOW Plan
- Groundwater Management Plan compliance
- Urban Water Management Planning Act compliance
- Agriculture Water Management Plan compliance
- Surface Water Diversion Reporting compliance
- AB 1420 compliance
- SBX 7-7 compliance
- CWC Section 529.5 compliance
- CWC Section 10920 compliance
- CWC Section 10562(b)(7) compliance (for stormwater projects).

Is an integrated project that benefits the entire watershed or a significant sub-watershed in the region, will be completed with active participation of multiple agencies and/or NGOs or other stakeholders, produces a net benefit to the Watershed, and has no unreasonable negative impacts on others.

Is a sustainable project that is resilient to changing conditions in the watershed.

Provides multiple benefits and includes two or more of the following elements:

- Water supply reliability, water conservation, and water use efficiency
- Stormwater capture, storage, clean-up, treatment, and management
- Removal of invasive non-native species, the creation and enhancement of wetlands, and the acquisition, protection, and restoration of open space and watershed lands
- Non-point source pollution reduction, management, and monitoring
- Groundwater recharge and management projects
- Contaminant and salt removal through reclamation, desalting, and other treatment technologies and conveyance of reclaimed water for distribution to users
- Water banking in the Watershed, exchange, reclamation, and improvement of water quality
- Multipurpose flood and storm water management programs
- Watershed protection and management
- Drinking water treatment and distribution
- Ecosystem and fisheries restoration and protection.

Is consistent with the implementation of the California Water Action Plan.

Implements the OWOW 2.0 Plan as adopted on February 4, 2014.

Complies with eligibility requirements contained within a specific Proposal Solicitation Package.

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OWOW STEERING COMMITTEE MEMORANDUM NO. 2016.8

DATE: July 7**,** 2016

TO: OWOW Steering Committee

SUBJECT: Consideration of the 2016 Chino Basin Storm Water Resources Plan Prepared by the Inland Empire Utilities Agency

PREPARED BY: Mark Norton, Water Resources and Planning Manager

RECOMMENDATION

It is recommended that the OWOW Steering Committee consider incorporating the 2016 Chino Basin Storm Water Resources Plan into the Santa Ana River Watershed's Integrated Regional Water Management Plan, the One Water One Watershed 2.0 Plan.

DESCRIPTION

SB 985 (Sen. Pavley - Agoura Hills), approved by the Governor on September 25, 2014, requires the development of a stormwater resource plan in order to receive grants for stormwater and dry weather runoff capture projects from any State bond measure approved by voters after January 1, 2014, such as the Proposition 1 Water Bond. Upon development of the stormwater resource plans, the planning area's Regional Water Management Group shall incorporate it into the Integrated Regional Water Management (IRWM) Plan. As Chino Basin is in the Santa Ana River Watershed, the Regional Water Management Group, which is the OWOW Steering Committee and SAWPA, shall review and consider integrating the 2016 Chino Basin Storm Water Resources Plan (Plan) into One Water One Watershed (OWOW) 2.0 Plan.

BACKGROUND

The Plan includes the following sections:

- Section 1 demonstrates the aggregation of the existing storm water and dry-weather flow management programs and their implementation agreements in the Chino Basin.
- Section 2, Storm Water Resources Plan for the Chino Basin Watershed, describes the Chino Basin Watershed area Plan and the plans and agreements upon which it is built: the Chino Basin Optimum Basin Management Plan, recharge master plans (storm water and dry-weather runoff management programs), and implementation agreements.
- Section 3, Storm Water Resource Plan Checklist and Self-Certification Narrative, is organized to follow the checklist in the State Guidelines and explains how the Plan complies with the Guidelines in greater detail than provided for in the checklist form.
- Section 4, References, contains references to the documents cited in Sections 2 and 3 with uniform resource locators (urls), enabling online access to the reference documents.
- Appendix A, Appendix A: Checklist and Self-Certification, contains the completed Checklist and Self-Certification form.

The State Water Resources Control Board published Storm Water Resources Plan Guidelines in December 2015 for the upcoming round of Proposition 1 grant funding for stormwater projects. The State Board proposes minimal requirements for "incorporation" of stormwater resources plans into IRWMPs. The process reflects that the OWOW process reflects an intent to achieve a more meaningful integration of planning efforts, including stormwater resources plans, into a watershed-wide strategy. However, it likely that we will not be able to address this until our next OWOW Plan update, and in the meantime, we want to facilitate agencies in the region being eligible for grant funds that are coming available. The recommendation today, therefore, is to consider "incorporating" the IEUA Plan into OWOW, but to recognize that this is an interim step to what should be a more thoughtful evaluation of stormwater resources planning across the entire watershed in the next OWOW Plan update.

Staff reviewed the Plan and provided comments to Inland Empire Utilities Agency staff such as encouraging linking the information in the Plan to information provided in the OWOW 2.0 Plan, identifying nonprofit organizations focused on stormwater planning and implementation, and suggesting programs that encourage and support distributed parcel-based best management practices that may be expanded in the region. These comments were addressed, and we recommend that the 2016 Chino Basin Storm Water Plan be incorporated into the OWOW 2.0 Plan.

Attachments:

1. Letter from Inland Empire Utilities Agency
2. Presentation from Inland Empire Utilities Agency
3. 2016 Chino Basin Storm Water Resources Plan
4. Executive Summary of OWOW 2.0 Plan

SC 2016.8 Storm Water Plan

Inland Empire Utilities Agency
A MUNICIPAL WATER DISTRICT

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March 10, 2016

Ms. Celeste Cantú
General Manager
SAWPA
11615 Sterling Avenue
Riverside, California 92503

RE: ADOPTION OF THE CHINO BASIN STORM WATER RESOURCES PLAN INTO OWOW 2.0

Dear Ms. Cantú

Inland Empire Utilities Agency (IEUA) has prepared the Chino Basin Stormwater Resources Plan (SWRP) pursuant to the guidelines outlined by the Department of Water Resources (DWR) for eligibility for a Proposition 1 Storm Water Grant award. The guidelines require a SWRP to be part of the region's integrated resources management plan. IEUA is thus requesting SAWPA review and adopt the Chino Basin SWRP as part of OWOW 2.0 at the March 25, 2016 OWOW Steering Committee meeting with subsequent recommendation to the SAWPA Commission for approval.

IEUA, Chino Basin Watermaster (Watermaster), Chino Basin Water Conservation District (CBWCD), San Bernardino County Flood Control District (SBCFCD) and the Chino Basin's cities and water districts have been working collaborative since 1998 to develop an integrated water resources management plan for the Chino Basin, have coordinated the development of the Optimum Basin Management Plan (OBMP) with stakeholders in the Santa Ana River Watershed OWOW plan, and have been implementing the OBMP since 2000.

The stormwater and dry weather flow recharge of projects included in the Chino Basin SWRP are consistent with OWOW 2.0 Chapter 5 Stormwater Resources and Risk Management, namely for

> "Existing FCD (flood control district) basin and facility retrofit evaluation and implementation studies (MS4 Permit requirement): Determine stormwater capture and groundwater recharge potential, concomitant with continued flood protection requirements, for FCD facilities throughout the SAR Watershed."

The projects in the Chino Basin SWRP have a developed list of priorities for implementation, and were consulted with potential project partners. The OWOW 2.0 recommendation of retrofitting existing FCD facilities comes in part due to the successful recharge projects developed in existing FCD facilities following recommendations of the 2001 Chino Basin Recharge Master Plan.

In developing the Chino Basin SWRP, the IEUA, Watermaster, the CBWCD, the SBCFCD, and public and private stakeholders in the Chino Basin area worked together over the past four years to identify new recharge opportunities with multiple benefits, to analyze them to determine recharge potential, to design the structural and operational improvements required to increase recharge, and to prioritize these improvements.

The Chino Basin SWRP describes activities and projects within the Chino Basin Watershed and the agreements and plans upon which the Chino Basin SWRP is built, primarily the Chino Basin OMBP, recharge master plans (storm water and dry-weather runoff management programs), and implementation agreements. The Chino Basin SWRP follows the content of the self-certification checklist and Section V of the DWR SWRP Guidelines. IEUA is making the Chino Basin SWRP available on its website, along with all cited references, plates, and GIS coverages as requested by DWR, enabling immediate reference to these seminal documents. These documents will be available at http://www.ieua.org/stormwater-resources-plan/

Having completed the Chino Basin Plan and with its adoption by SAWPA, IEUA will have met the Storm Water Resources Plan requirements of DWR. IEUA will be submitting an application for Proposition 1 grant funding for storm water projects identified through its 2013 Recharge Master Plan efforts. Thank you for your continued leadership in the watershed's integrated resources management.

Sincerely,

P. Joseph Grindstaff
General Manager

Enclosure: Chino Basin Stormwater Resources Plan

ADOPTION OF THE CHINO BASIN STORM WATER RESOURCES PLAN INTO OWOW 2.0




Andy Campbell
Deputy Manager of Planning
Inland Empire Utilities Agency

Inland Empire Utilities Agency
A MUNICIPAL WATER DISTRICT

OWOW Steering Committee
March 25, 2016

Storm Water Management Plan

- Water Code section 10563 (as amended by Senate Bill 985) requires public agencies to develop a Storm Water Resource Plan as a condition of receiving grant funds from a bond (approved after January 2014) for storm water and dry weather runoff capture projects

Inland Empire Utilities Agency
A MUNICIPAL WATER DISTRICT

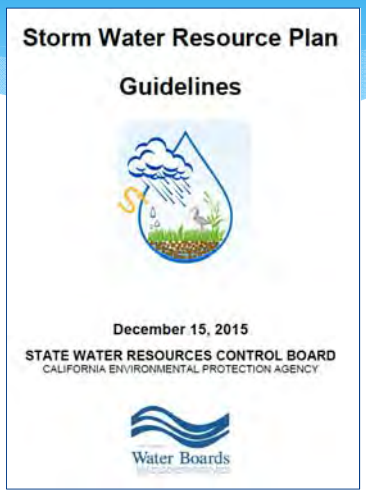
OWOW Steering Committee
March 25, 2016

Proposition 1 Stormwater Grant

Eligible Applicants	Public agencies, nonprofit organizations, public utilities, federally recognized Indian tribes, state Indian tribes listed on Native American Heritage Commission's California Tribal Consultation List, and mutual water companies.
Eligible Project Types	Implementation - Multi-benefit storm water management projects which may include, but shall not be limited to, green infrastructure, rainwater and storm water capture projects and storm water treatment facilities. Planning - Development of Storm Water Resource Plans to meet the requirements of Water Code section 10562 and related State Water Board guidelines and project-specific planning projects.
Funding Available	$200 million.
Applications	ROUND 1: Open Now! ROUND 2: Tentative for 2018

SWRP Guidelines

- Water Code section 10565 requires the State Water Board to establish guidance for Storm Water Resource Plans.
  - Watershed Collaboration
  - Quantitative Prioritization
  - Implementation Strategy and Schedule
  - Public Outreach and Participation
  - Checklist and Self-Certification



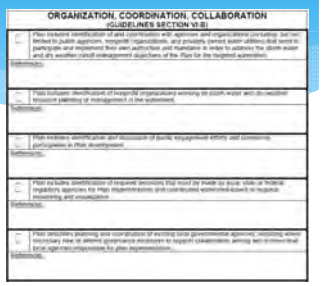
Inland Empire Utilities Agency
A MUNICIPAL WATER DISTRICT

Why Include in OWOW 2.0

- Approach on a Watershed scale yielding multiple benefits
- Participate in a Regional Integrated Resources Management Plan
- Coordinate with agencies that exercise their own authorities and mandates to address storm water and dry weather runoff management
- Plan, coordinate, support, and collaborate among two or more lead local agencies responsible for Plan implementation

Chino Basin SWRP

- Follows self-certification outline
- Summarizes the Optimum Basin Management Plan, Recharge Master Plans, and others efforts
- Provides references, as required
  - http://www.ieua.org/stormwater-resources-plan/
  - References are all linked to IEUA, Watermaster, or Regional Board websites
  - GIS files are provided


ORGANIZATION, COORDINATION, COLLABORATION
(GUIDELINES SECTION VI-B)

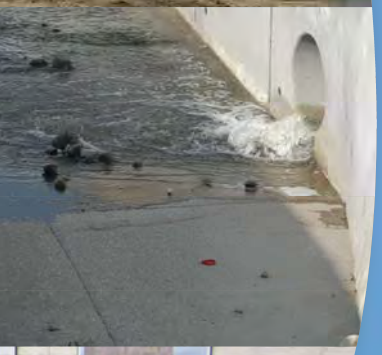
SWRP REFERENCED DOCUMENTS

1999 – Optimum Basin Management Program, Phase I
2000 – Peace Agreement
2000 – PEIR for OBMP Volume 1
2000 – PEIR for OBMP Volume 2
2001 – Recharge Master Plan, Phase II
2003 – Four Party Agreement
2004 – First Amendment to Peace Agreement
2004 – Regional Board Resolution R8-2004-0001
2005 – Recycled Water Groundwater Recharge Phase I Permit – R8
2007 – Peace II Agreement
2007 – Recycled Water Groundwater Recharge Phase II Permit – R
2009 – Recycled Water Groundwater Recharge Permit Addendum
2010 – RMPU
2010 – SEIR for Peace II
2013 – Chino Basin Groundwater Model Update and Recalculation the Peace Agreement
2013 – Amendment to the 2010 RMPU
2014 – SAWPA OWOW 2.0 Plan

Requesting SAWPA

Review and adopt the Chino Basin Storm Water Management Plan as part of OWOW 2.0 with subsequent recommendation to the SAWPA Commission for approval



2016 Chino Basin Storm Water Resources Plan

Functional Equivalency Document

March 11, 2016

Inland Empire Utilities Agency
A MUNICIPAL WATER DISTRICT

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1.1 Background

On September 24, 2014, Governor Brown signed SB 985 (Pavley) into law. This bill created a requirement that in order to receive grant funding for a storm water and/or dry-weather runoff project where the grant funding was provided by a bond act approved by the voters after January 1, 2014, the project be included in a Storm Water Resource Plan (SWRP). The minimum contents of an SWRP were specified in SB 985. The State Water Resources Control Board (SWRCB) published the final Storm Water Resources Plan Guidelines in December, 2015 (hereafter Guidelines), which describe the requirements of an SWRP consistent with SB 985 and other laws and regulations. The Guidelines indicate that an entity may have existing plans and agreements that in aggregate are functionally equivalent to an SWRP, in which case the entity can provide documentation demonstrating the nexus of its aggregation of plans and agreements to the requirements in the Guidelines. The objective of this report is to demonstrate that the aggregation of the existing storm water and dry-weather flow management programs and their implementation agreements in the Chino Basin are functionally equivalent to an SWRP.

The Inland Empire Utilities Agency (IEUA), the Chino Basin Watermaster (Watermaster), the Chino Basin Water Conservation District (CBWCD), and the San Bernardino County Flood Control District (SBCFCD), and the region's cities and water districts have worked together since 2000 to implement a regional program within the Chino Groundwater Basin to increase groundwater recharge with using storm water and dry-weather runoff. This is demonstrated through a 15-year process of collaboration; the development of recharge master plans; the construction, operation, maintenance, and monitoring of new recharge projects facilities; periodic reviews of these recharge projects' performance; and periodic updates to recharge master plans. The IEUA, Watermaster, the CBWCD, the SBCFCD, and the related parties completed the latest update to the Chino Basin Recharge Master Plan in 2013 and are in the process of implementing new projects that will increase the recharge of storm water, dry-weather runoff, and recycled water within the watershed of the Chino Basin.

The combined efforts of the IEUA, Watermaster, the CBWCD, and the SBCFCD to collect and recharge storm water and dry-weather runoff is part of a greater integrated water resources management plan for the Chino Groundwater Basin called the Optimum Basin Management Program (OBMP). The OBMP includes comprehensive monitoring (surface water, groundwater, and land subsidence), storm water and dry-weather runoff recharge improvements, salt and nutrient management, water quality improvements, the recovery of impaired groundwater for beneficial use, conjunctive use, land subsidence management, and safe yield management.

1.2 Organization of This Report

The remainder of this report is organized as follows:

- Section 2 of this report, *Storm Water Resources Plan for the Chino Basin Watershed*, describes the 2016 Chino Basin SWRP and the plans and agreements upon which it is built: the

Chino Basin OMBP, recharge master plans (storm water and dry-weather runoff management programs), and implementation agreements.

- Section 3 of this report, *Storm Water Resource Plan Checklist and Self-Certification Narrative*, is organized to precisely follow the checklist in Appendix A of the Guidelines, included herewith as the Appendix A, and explains how the 2016 Chino Basin SWRP complies with the Guidelines in greater detail than provided for in the checklist form. The last subsection describes how the Chino Basin SWRP complies with the Requirements of Section V of the Guidelines.
- Section 4 of this report, *References*, contains references to the documents cited in Sections 2 and 3 with uniform resource locators (urls), enabling online access to the reference documents. These references are also included in Sections 2 and 3 with urls, enabling immediate reference to seminal documents.
- Appendix A, *Appendix A: Checklist and Self-Certification*, contains the completed Checklist and Self-Certification form from the Guidelines Appendix A. The form provided in the Guidelines contains insufficient space for a full explanation of how the 2016 Chino Basin SWRP complies with the Guidelines. Each checklist item references directly to a subsection of Section 3.

1.3 Web Resources

The IEUA has established a webpage (www.ieua.org/stormwater-resources plan/ that contains a portable document file (pdfs) of this report, pdfs of the large scale map plates referred to in Sections 2 and 3, and pdfs of most of the references cited herein. Those references not contained on the IEUA webpage have urls to websites where they may be viewed. The GIS shapefiles that were used to construct the map plates are also included on the IEUA webpage as requested in the Guidelines.

2.1 Chino Basin Storm Water Resource Plan

The 2016 Chino Basin SWRP consists of a series of plans, implementation agreements and construction and operations activities when viewed in aggregate are functionally equivalent to an SWRP as described in the Guidelines. The table below summarizes the plans, agreements, monitoring and assessment activities, and construction and operations activities that define the scope of 2016 Chino Basin SWRP and when considered in aggregate demonstrate compliance with the Guidelines. Completed plans and agreements in Table 1 are available at the indicated website or at www.ieua.org/stormwater-resources plan/

Table 1
Elements of the 2016 Chino Basin Storm Water Resources Plan

Item	Plan, Agreement, Monitoring, Construction, or Operation	Function	Completed or Effective Date
Optimum Basin Management Program (OBMP)	Plan	Defines the integrated water resources plan for the Chino Basin and overlying Watershed that includes, among several initiatives, implementation of a recharge master plan and monitoring of its performance.	1999
Peace Agreement	Agreement	Commits the Watermaster and the IEUA to implement the OBMP, and as to recharge, it provides direction on how the basin should be recharged	2000
2001 Recharge Master Plan (2001 RMP)	Plan	Defines the universe of storm and dry-weather runoff recharge projects as of 2001	2001

Table 1
Elements of the 2016 Chino Basin Storm Water Resources Plan

Item	Plan, Agreement, Monitoring, Construction, or Operation	Function	Completed or Effective Date
Biennial State of the Basin Report http://www.cbwm.org/rep_engineering.htm	Monitoring and Assessment	Contains a comprehensive assessment of the surface and groundwater resources of the Chino Basin based on monitoring	2002 and every other year thereafter
Chino Basin Maximum Benefit Annual Report http://www.cbwm.org/rep_engineering.htm	Monitoring and Assessment	Contains a comprehensive assessment of the surface and groundwater resources of the Chino Basin based on monitoring	2005 and annually thereafter
Four-Party Agreement	Agreement	Defines IEUA, Watermaster, CBWCD, and SBCFCD responsibilities, and cost sharing in the implementation of the 2001 RMP	2001
Cost Sharing Agreement	Agreement	Defines cost sharing and financial obligations for construction of 2001 RMP facilities	2001 and periodically updated
Construction and operation of the 2001 RMP facilities	Construction and Operation	CEQA, design, and construction of the 2001 RMP facilities with most construction completed by 2008 and facilities in operation thereafter	2002 to present; operations to continue indefinitely
Peace II Agreement	Agreement	Requires the IEUA and Watermaster to update the recharge master plan every five years, revises cost sharing for O&M, and provides direction for supplemental water recharge	2007

Table 1
Elements of the 2016 Chino Basin Storm Water Resources Plan

Item	Plan, Agreement, Monitoring, Construction, or Operation	Function	Completed or Effective Date
One Water One Watershed 2.0	Plan	Integrated Water Resourced Management Plan for the Santa Ana Watershed	2014
2010 Recharge Master Plan Update (2010 RMPU)	Plan	Defines the universe of storm and dry-weather runoff recharge projects as of 2010	2010
2013 Amendment to the 2010 RMPU (hereafter the 2013 RMPU)	Plan	Defines the universe of storm and dry-weather runoff recharge projects as of 2013 and includes recommended projects and an implementation plan	2013
Upper Santa Ana River Habitat Conservation Plan http://www.uppersarhcp.com/	Plan	Defines a plan to protect habitat and develop the water resources of the upper Santa Ana River watershed	Projected 2017
Update to the 2001 Four-Party Agreement	Agreement	Updates the 2001 Four Party Agreement	Projected 2016
Update to the 2001 Facilities Cost Sharing Agreement	Agreement	Updates the IEUA and Watermaster cost sharing agreement for the 2013 RMPU	Projected 2016
Construction and operation of 2013 RMP facilities	Construction and Operation	CEQA, design, and construction of the 2013 RMPU facilities with construction completed by 2020 and facilities in operation thereafter	Projected 2015-2020; operations to continue indefinitely
2020 Recharge Master Plan Update	Plan	Defines the universe of storm and dry-weather runoff recharge projects as of 2020	Projected 2020

The Chino Basin storm water and dry-weather runoff recharge improvements for the 2001 RMP are included in the Santa Ana Regional Quality Control Plan[1] as a requirement to access the assimilative capacity for TDS and nitrate. When viewed over time, the Chino Basin SWRP began in 1998, has successfully progressed to the present, and continues into the future. The 2016 Chino Basin SWRP is not static plan – it is continuing process that will continue through 2030 pursuant to the Peace Agreements in the Chino Basin.

2.2 Optimum Basin Management Program

Figure 1 shows the location of the Chino Basin in the Santa Ana Watershed. The basin lies within the Counties of Los Angeles, San Bernardino, and Riverside; includes the Cities of Chino, Chino Hills, Eastvale, Fontana, Ontario, Pomona, Rancho Cucamonga, and Upland, as well as several other communities; and covers about 235 square miles.

The Chino Basin is an integral part of the regional and statewide water supply system. The Chino Basin is one of the largest groundwater basins in Southern California, containing about 5,700,000 acre-ft of water in storage, and has an unused storage capacity of over 1,000,000 acre-ft. Cities and other water supply entities produce groundwater for all or part of their municipal and industrial supplies. Agricultural users also produce groundwater from the basin. Irrigated agriculture has declined substantially in recent years and is projected to be almost nonexistent by 2020.

Production and storage rights in the Chino Basin are defined in the Stipulated Judgment[2] (Judgment), issued in 1978 (Chino Basin Municipal Water District vs. the City of Chino et al. [SBSC Case No. RCV 51010]). Since that time, the basin has been sustainably managed, as required by the Judgment, under the direction of a court-appointed Watermaster. The Judgment declares that the safe yield of the Chino Basin is 140,000 acre-ft/yr,[3] which is allocated among three pools of right holders as follows:

Overlying agricultural pool	82,800 acre-ft/yr
Overlying non-agricultural pool	7,366 acre-ft/yr
Appropriative pool	49,834 acre-ft/yr

A fundamental premise of the Judgment is that all Chino Basin water users are allowed to pump sufficient water from the basin to meet their requirements. To the extent that pumping by a party exceeds its share of the safe yield, assessments are levied by Watermaster to replace overproduction. The Judgment recognizes that there exists a substantial amount of available unused groundwater storage capacity space in the Chino Basin that can be utilized for storage and the conjunctive use of supplemental and basin waters, makes utilization of this storage

[1] The Santa Ana Regional Water Quality Control Plan is located here::
http://www.waterboards.ca.gov/santaana/water_issues/programs/basin_plan/index.shtml

[2] The stipulated agreement or Judgment, restated in 2012, is located here:
http://www.cbwm.org/rep_legal.htm

[3] Watermaster has conducted extensive hydrologic investigations and recently concluded that the safe yield has declined. Watermaster is currently in the process of resetting the safe yield. See Section 7 of 2013 Chino Basin Model Update and Recalculation of Safe Yield Pursuant to the Peace Agreement, October 2015.:
http://www.ieua.org/referenced-documents/.

subject to Watermaster control and regulation, and provides that any person or public entity, whether or not a party to the Judgment, may make reasonable beneficial use of the available storage, provided that no such use shall be made except pursuant to a written storage agreement with Watermaster.

The Chino Basin Judgment gave Watermaster the authority to develop an optimum basin management program (OBMP) for the Chino Basin, including both water quantity and quality considerations. Watermaster, with direction from the Court, began the development of the OBMP in 1998 and completed it in July 2000. The OBMP was developed in a public collaborative process that identified the needs and wants of all the stakeholders, developed a set of management goals, and identified impediments to those goals and a series of actions that could be taken to remove those impediments and achieve management goals. The goals of the OBMP process include:

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

Table 1 lists these goals, their impediments, actions that can be taken to remove the impediments, the implications of these actions, and the OBMP program element that contains the action.

The Court approved the OBMP and its implementation agreement, hereafter the Peace Agreement, in October 2000.[4,5] The OBMP consists of nine program elements or initiatives that contain the actions that remove the impediments to the OBMP goals and enable their achievement. These include:

- Program Element 1 – Develop and Implement Comprehensive Monitoring Program
- Program Element 2 – Develop and Implement Comprehensive Recharge Program
- Program Element 3 – Develop and Implement Water Supply Plan for the Impaired Areas of the Basin
- Program Element 4 – Develop and Implement Comprehensive Groundwater Management Plan for Management Zone 1
- Program Element 5 – Develop and Implement Regional Supplemental Water Program
- Program Element 6 – Develop and Implement Cooperative Programs with the Regional Water Quality Control Board, Santa Ana Region (Regional Board) and Other Agencies to Improve Basin Management
- Program Element 7 – Develop and Implement Salt Management Program

[4] Optimum Basin Management Program, Phase I Report, August 1998, WEI. The OBMP is located here: http://www.ieua.org/referenced-documents/.

[5] The Peace Agreement is located here: http://www.ieua.org/referenced-documents/.

- Program Element 8 – Develop and Implement Groundwater Storage Management Program
- Program Element 9 – Develop and Implement Conjunctive-Use Programs

Each program element contains an implementation plan and schedule. The implementation plan and schedule are included in both the OBMP and the Peace Agreement.: The parties to the Peace Agreement were bound to implement it and have done so under close Court supervision.

2.3 Storm Water Resource Planning

The IEUA, Watermaster, the CBWCD, and the SBCFCD and the region's cities and water districts have collaborated to implement all of these program elements. Program Element 2 – Develop and Implement Comprehensive Recharge Program is fundamental to achieving the first two OBMP goals (1 Enhance Basin Water Supplies and 2 Protect and Enhance Water Quality). Prior to the OBMP, the SBCFCD and the US Army Corps of Engineers (USACE) constructed flood control projects that efficiently capture and convey storm water to the Santa Ana River, effectively eliminating the groundwater recharge that formerly took place in the stream channels and flood plains of the Chino Basin. These flood control projects consisted of concrete lining of all the major drainages in the basin and the construction of passive retention basins to temporarily store storm water and release it in 24 hours or less. Insufficient provisions were made to mitigate the loss of recharge from these flood control projects. Figure 2 shows the locations of the major channels that drain the Chino Basin area and their time history of concrete lining. Figure 3 shows the time history of storm water recharge in the channels that cross the Chino Basin from the San Gabriel Mountains to the Santa Ana River. The loss in recharge to the basin is estimated to be at least 15,000 acre-feet/year (afy). Also, there were no mitigation efforts to preserve recharge when land use was converted from native and agricultural uses to urban uses. Lining the drainages with concrete and changes in land use resulted in a decline in the sustainable yield of the Chino Basin. Program Element 2 was developed to reverse the loss in yield.

Increasing stormwater recharge also results in the capture and recharge of dry-weather runoff. Capturing and recharging storm water and dry-weather runoff improves water quality in the Santa Ana River, reducing the concentrations of metals, nutrients, pathogens, and other constituents of concern. These contaminants are eliminated during recharge through soil-aquifer treatment processes and thus are not a concern for groundwater degradation. In fact, the total dissolved solids (TDS) and nitrogen concentrations in storm water recharge are very low, and subsequently increasing stormwater recharge lowers the TDS and nitrate concentration in groundwater. In summary, increasing the recharge of storm water and dry-weather runoff increases the sustainable yield of the Chino Basin and improves the water quality of both the Chino Basin and the Santa Ana River, the latter being a regional benefit extending to other Santa Ana River Watershed parties and Santa Ana River Watershed habitat.

2.4 Recharge Master Plan Activities and Project Implementation

Pursuant to the OBMP and the Peace Agreement, the IEUA, Watermaster, the CBWCD, the SBCFCD and the region's cities and water districts completed a recharge master plan in 2001 (hereafter the 2001 Recharge Master Plan or 2001 RMP) and began its implementation in 2001

with construction occurring between 2004 and 2014. Seventeen existing flood retention facilities were modified to increase diversion rates, increase conservation storage, and subsequently increase the recharge of storm water and dry-weather runoff. And, two new recharge facilities were constructed. Figure 4 shows these facilities. The cost of these recharge improvements was about $60 million, of which half came from grants provided from Proposition 13 bonds and other grants with the remainder paid for by the IEUA and Watermaster.

Watermaster has permits from the SWRCB to divert surface water to the spreading basins shown in Figure 4, store the recharged water, and subsequently recover it for beneficial use. Watermaster holds these permits in trust for all entities that rely on groundwater from the Chino Basin.

Figure 5 shows the estimated annual recharge of storm water, dry-weather runoff, and recycled water for the period of 2004 through 2015. Figure 5 is based on the comprehensive monitoring of the recharge basins by the IEUA; this information is documented in monthly reports prepared by the IEUA and annual reports prepared by the Chino Basin Watermaster, the latter of which are submitted to the SWRCB. Prior to 2004, there was no significant recharge of dry-weather runoff, and recycled water recharge was about 500 acre-ft/yr. Based on monitoring of the recharge performance and numerical model investigations, the aggregate average annual increase in storm and dry-weather runoff recharge due to the implementation of the 2001 RMP is estimated to be about 6,000 acre-ft/yr. The aggregate recharge of new storm water, dry-weather runoff, and recycled water created through the implementation of the 2001 RMP for the ten-year period July 2006 through June 2015 is about 106,000 acre-ft and has reduced the demand for imported water from the State Water Project (SWP) by the same amount, averaging about 10,600 acre-ft/yr. During most of this period, storm water recharge was suppressed by drought, and the recycled system was expanding; the amount of storm and recycled water recharge due to the 2001 RMP will increase substantially with the fullness of time.

The IEUA, Watermaster, the CBWCD, and the SBCFCD prepared the 2010 Recharge Master Plan Update and amended it in 2013. The 2010 Recharge Master Plan Update and its 2013 amendment (hereafter the 2013 Recharge Master Plan Update or 2013 RMPU) were developed in a transparent process, including nine public workshops for the 2010 Recharge Master Plan Update and 67 steering committee meetings and workshops for the 2013 RMPU. The steering committee meetings were open to all stakeholders with an interest in storm water and dry-weather runoff management and groundwater management in the Chino Basin. The IEUA and Watermaster Boards of directors approved the 2013 RMPU, and it was submitted to the Court in the fall of 2013 for review and approval. The Court approved the 2013 RMPU in 2014 and directed the IEUA and Watermaster to implement it.

The 2013 RMPU contains two types of recharge projects: yield enhancement and production sustainability projects. The steering committee issued a "call for projects" to all entities with an interest in storm water and dry-weather management and groundwater management in the Chino Basin. The steering committee developed screening criteria to evaluate and rank the recharge projects. In total, 39 yield enhancement projects and nine production sustainability projects were identified and evaluated by the steering committee to determine average annual stormwater recharge and recycled water recharge capacities. After four years of meetings, the steering committee recommended the storm water projects listed in Table 2. Table 2 lists the project name, new storm water recharge, recycled water recharge capacity, and capital cost.

The 2013 RMPU will increase storm water and dry-weather runoff recharge in the Chino Basin by about 5,500 acre-ft/yr and increase recycled water recharge capacity by about 7,100 acre-ft/yr. The total cost to implement the 2013 RMPU is about $41 million. When fully implemented, the 2013 RMPU will reduce the reliance on SWP water by about 12,600 acre-ft/yr.

The 2013 RMPU implementation includes a process to create a database of all known local storm water and dry-weather runoff management projects implemented through the municipal separate storm sewer system (MS4) permits in the Los Angeles, Riverside, and San Bernardino County parts of the Chino Basin. The project types, physical characteristics, and time histories of maintenance are being stored in a relational database for periodic review with the intent of incorporating them into surface water and groundwater models. The surface water model will be used to estimate the new storm water discharge and dry-weather runoff and the subsequent recharge of these waters in the Chino Basin created by these projects. The groundwater model will be used to evaluate the groundwater basin response and net new recharge to the basin and to subsequently reset the basin safe yield. The water quality benefits to the Chino Basin and the Santa Ana River will be estimated in this process.

Presently, the IEUA, Watermaster, the CBWCD, and the SBCFCD are in the process of updating their Four-Party Agreement, used to implement, operate, maintain, and monitor the 2001 RMP facilities, and to enable the implementation of the 2013 RMPU. The IEUA and Watermaster will split the capital cost of 2013 RMPU projects that result in an increase in storm, dry-weather runoff, and recycled waters, and Watermaster will pay the capital cost for improvements that increase storm water and dry-weather runoff recharge only. Pursuant to the Peace II Agreement, recharge operations and maintenance costs are shared on a pro rata basis with the IEUA's share based on the annual amount of recycled water recharged relative to the total amount of annual recharge, the latter including storm water, dry-weather runoff, and recycled water recharge. The financing plan for the 2013 RMPU is currently in development and will be completed in late 2016.

The IEUA and Watermaster are currently funding the advanced planning of the recharge improvements listed in Table 2 for the 2013 RMPU and reporting on the technical and budget statuses at monthly Recharge Investigation Project Committee (RIPCom) meetings and at their respective monthly board meetings. Table 3 summarizes the status of each of the recommended 2013 RMPU projects as of January 2016.

2.4.1 Storm Water Resource Planning in the Chino Basin is a Continuous Process

In summary, the IEUA, Watermaster, the CBWCD, the SBCFCD and the region's cities and water districts have been working together since 1998 to develop an integrated water resources management plan for the Chino Basin area, have coordinated the development and implementation of the OBMP with other stakeholders in the Santa Ana River Watershed OWOW 2.0 plan, and have been implementing the OBMP since 2000. The process to develop and implement the OBMP has been open and transparent. Implementation of OBMP Program Element 2 – Develop and Implement Comprehensive Recharge Program has been very successful: increasing the recharge of storm water, dry-weather runoff, and recycled water by an average of 10,600 acre-ft/yr. Implementation of the 2001 RMP in the Chino Basin has reduced

the demand for imported SWP water by Chino Basin water agencies by 10,600 acre-ft/yr and improved the water quality in the Chino Basin and the Santa Ana River. The IEUA, Watermaster, the CBWCD, and the SBCFCD have conducted extensive technical investigations and exhaustive public outreach to develop the 2013 RMPU, and they are engaged in advanced planning to implement it. Implementation of the 2013 RMPU is expected to reduce the demand for SWP water by an additional 12,600 acre-ft/yr.

Pursuant to the Peace Agreements and Court order, the process of planning and construction of additional recharge projects will occur through 2030, and could be extended through 2060 if the Peace Agreement extension provision is implemented.

Section 3 – Storm Water Resource Plan Checklist and Self-Certification Narrative

This section demonstrates the functionally equivalency of the 2016 Chino Basin SWRP to the SWRP requirements in the Guidelines. This section is organized to precisely follow the *Appendix A Self Certification and Checklist* (Checklist) from the Guidelines. Each requirement in the Checklist is listed in a subsection below with a response. This approach is used to provide more a complete response to each requirement in the Checklist than can be accomplished due to space limitations in the Checklist form. Each response includes a "yes" or "no" as to whether or not a requirement has been met and an explanation as to why. All relevant documents used in the response are cited herein and they are available from the IEUA webpage: http://www.ieua.org/referenced-documents/ or can be accessed from another website at the url assigned to it.

The Checklist form from the Guidelines is also included in this report as Appendix A. The response to each requirement in the Checklist form in Appendix A refers explicitly to a subsection of this Section 3.

3.1 Watershed Identification (Guidelines Section VI.A)

The Chino Basin watersheds considered in the 2013 RMPU include, from west to east, the San Antonio Creek/Chino Creek system, the Cucamonga Creek system, the Day Creek system, and the San Sevaine Creek system. The watershed boundaries and subarea boundaries were developed based on fine-scale topographic mapping and storm drainage plans provided by the Cities and the Counties and were subsequently verified in the field. The scale of the watershed mapping covers the Chino Basin and the areas under the common jurisdictions of the IEUA, Watermaster parties, the CBWCD, and the SBCFCD. The subarea delineation used in the 2013 RMPU was required to develop and apply numerical surface water models to evaluate and design storm water and dry-weather runoff recharge facilities. The systems approach adopted in the 2013 RMPU allowed for determining the interaction between existing and proposed facilities, quantification of tradeoffs between various facilities, and various scales of improvements at recharge facilities. The drainage systems identified in the watershed maps were modeled such that the IEUA and Watermaster could evaluate the change in recharge at existing and/or proposed facilities due to the construction of new recharge facilities or the expansion of existing recharge facilities located upstream. The watershed maps are included in the 2013 Recharge Master Plan and the requested GIS files are available on the IEUA SWRP webpage located at http://www.ieua.org/stormwater-resources-plan/ . The plates include the following:

- Plate 1 – Chino Basin Subwatersheds and Surface Water Diversions within the Santa Ana Watershed
- Plate 2 – Recharge Improvements in the Chino Basin Since Implementation of the OBMP and the 2001 Recharge Master Plan
- Plate 3 – Recharge Facilities and Channel Lining History in the Chino Basin
- Plate 4 – Water Service Areas and Recharge Facilities in the Chino Basin

- Plate 5 – Land Use Control Agencies and Recharge Facilities in the Chino Basin

3.1.1 Plan Identifies Watershed and Subwatershed(s) for Storm Water Resource Planning [Water Code Section 10565(c), 10562(b)(1), 10565(c)]

Yes. The Chino Basin Watershed is wholly contained in the Santa Ana River Watershed. The Chino Basin Watershed area overlies: most of the adjudicated Chino Basin, the service areas of the IEUA, the retail water agencies that depend on the Chino Basin for water supply, the CBWCD; and parts of the services areas of the Los Angeles County Flood Control District, Riverside, Riverside County Flood Control and Water Conservation District and SBCFCD. The subwatersheds include San Antonio/Chino Creek, Cucamonga Creek, Day Creek and San Sevaine Creek. Each of these subwatersheds has been subdivided into very small subdrainages to enable the detailed numerical surface water modeling, recharge project conceptualization and evaluations of existing and proposed recharge projects. This level of watershed discretization provides for a geographically comprehensive, watershed-based recharge master plan, enabling: the systematic numerical analysis of how the various spreading basins and channels function and interact; quantification of multiple benefits including water supply, water quality and other environmental benefits (e.g., reduction in greenhouse gas emissions); and for the optimization of recharge benefits and costs.

3.1.2 Plan Is Developed on a Watershed Basis, Using Boundaries as Delineated by USGS, CalWater, USGS Hydrologic Unit Designations, or an Applicable Integrated Regional Water Management Group, and Includes a Description and Boundary Map of Each Watershed and Sub-watershed Applicable to the Plan

Yes. The Chino Basin SWRP is developed on a watershed basis, the watershed being four tributaries to the Santa Ana River that include San Antonio Creek/Chino Creek system, the Cucamonga Creek system, the Day Creek system, and the San Sevaine Creek system. The initial watershed boundary delineation was based on the USGS Hydrologic Unit designations and then superseded by more refined delineation based on fine-scale topographic mapping and storm drainage plans provided by the Cities and the Counties, and subsequently verified in the field. The watershed boundaries used in the 2013 RMPU are consistent with the watershed boundaries included in the Santa Ana Watershed IRWMP, called One Water One Watershed (OWOW) 2.0.

3.1.3 Plan includes an explanation of why the watershed(s) and sub-watershed(s) are appropriate for storm water management with a multiple-benefit watershed approach

Yes. See Section 3.1.1.

3.1.4 Plan Describes the Internal Boundaries within the Watershed (Boundaries of Municipalities; Service Areas of Individual Water, Wastewater, and Land Use Agencies, Including Those Not Involved in the Plan; Groundwater Basin Boundaries, Etc.; Preferably Provided in a Geographic Information System Shape File)

Yes. The boundaries of the municipalities and counties; the service areas of individual water, wastewater, and land use control agencies, including those not involved in the Plan; and the groundwater basin boundaries were included in the 2013 RMPU and are included on the IEUA SWRP webpage located here http://www.ieua.org/stormwater-resources-plan/. Map plates showing these boundaries are included as pdf files and GIS shapefiles.

3.1.5 Plan Describes the Water Quality Priorities within the Watershed Based on, at a Minimum, Applicable TMDLs and Consideration of the Water Body-Pollutant Combinations Listed on the State's Clean Water Act Section 303(d) List of Water Quality Limited Segments (a.k.a. Impaired Waters List)

Yes. Table 4 lists the water quality limited segments in the Chino Basin[6] for the watersheds included in the plan and the 2013 RMPU projects that will provide water quality benefits. The primary benefit is achieved through reduced storm water discharge downstream of the proposed Ely, Montclair, and Turner Basin projects, and the diversion of dry-weather (urban) runoff to the spreading basins and its subsequent recharge. While there are no impaired water quality segments on the Day and San Sevaine Creek systems, the reductions in storm water discharge and dry-weather runoff at the proposed facilities will improve water quality in these creeks downstream of the proposed 2013 RMPU projects and in the Santa Ana River.

3.1.6 Plan Describes the General Quality and Identification of Surface and Ground Water Resources within the Watershed (Preferably Provided in a Geographic Information System Shape File)

Yes. Please see the Watermaster biennial State of the Basin Report sections entitled *General Hydrologic Conditions* and *Water Quality* that characterizes groundwater conditions in the Chino Basin and the annual Chino Basin Maximum Benefit Annual Report section 3 entitled *Maximum-Benefit Monitoring Program: Data Collected in 2014* and Section 4 entitled *The Influence of Rising Groundwater on the Santa Ana River* that characterizes surface and ground water resource conditions in the Basin.[7, 8] The former report will be updated later this year. The latter is being updated and will be available in May 2016.

[6] The current 303 (d) of impaired water bodies in the Santa Ana River watershed is located here: http://www.waterboards.ca.gov/santaana/water_issues/programs/tmdl/docs/303d/2010_303d.pdf

[7] See the groundwater quality section in the 2014 State of the Basin Report, located here: http://www.cbwm.org/rep_engineering.htm

[8] See Sections 3 and 4 of the Maximum Benefit Annual Report, located here: http://www.cbwm.org/rep_engineering.htm

3.1.7 Plan Describes the Local Entity or Entities that Provide Potable Water Supplies and the Estimated Volume of Potable Water Provided by the Water Suppliers

Yes. Please see Section 2.4 of the 2013 RMPU[9] for a detailed description of the potable water demands for entities that provide potable water supplies and the sources of those supplies.

3.1.8 Plan Includes Map(s) Showing Location of Native Habitats, Creeks, Lakes, Rivers, Parks, and Other Natural or Open Space within the Sub-Watershed Boundaries

Yes. Please see Section 5.9 of the OWOW 2.0 report[10] for the subject maps. The maps and related documentation in the OWOW 2.0 report are presently being updated. The IEUA is working in partnership with the other regional water agencies in the Santa Ana River Watershed, including the Eastern Municipal Water District, the Orange County Water District, the San Bernardino Valley Municipal Water District, and the Western Municipal Water District to develop the Upper Santa Ana River Habitat Conservation Plan (USARHCP).[11] One of the goals of the USARHCP is to identify key habitat areas and to create a mitigation bank to enable their protection and/or the creation of new habitat. This plan should be completed in July 2017.

IEUA has dedicated 3.7 acres of habitat at its RP3 recharge site to the preservation of riparian and woodland habitat. The habitat is conserved as mitigation for the recharge facilities constructed following the 2000 RMP. The site collects dry weather flows from Declez creek (a tributary to San Sevaine Creek) where they are cleans by the wetlands and recharged. In 2004, IEUA dedicated the Chino Creek Wetlands and Educational Park (CCP) in Chino on 22 acres. The park was partially funded by a state grant from the State Water Resources Control Board and was designed to restore native habitat and natural drainage, showcasing the environmental values of the Prado Basin, the largest freshwater habitat remaining in southern California. The park is adjacent IEUA LEED Platinum headquarters building, which integrates LID methods in its construction, landscaping, and integration with the wetlands park. Stormwater is flows through the park are polished through the LID in place and by the wetlands environment. Adjacent the IEUA headquarters runs Magnolia Channel (a tributary to Chino Creek) which has had significant bacteriological and sediment runoff in storms. IEUA has created the Magnolia channel settling basin and riparian habitat to remove the sediment and bacteria from storm flows in Magnolia Channel. CBWCD houses a water conservation garden that is open to the community for drought tolerant plant and landscape tours and educational water conservation events.

[9] Please see Section 2.4 of the 2013 RMPU located here: http://www.ieua.org/referenced-documents/.

[10] Please see Section 5.9 of the OWOW 2.0 report located here: http://www.sawpa.org/owow-2-0-plan-2/.

[11] Please visit http://www.uppersarhcp.com for a description of the USARHCP.

3.1.9 Plan Identifies (Quantitative, if Possible) the Natural Watershed Processes that Occur within the Sub-Watershed and a Description of How Those Natural Watershed Processes Have Been Disrupted within the Sub-Watershed (e.g., High Levels of Imperviousness Convert the Watershed Processes of Infiltration and Interflow to Surface Runoff Increasing Runoff Volumes; Development Commonly Covers Natural Surfaces and Often Introduces Non-Native Vegetation, Preventing the Natural Supply of Sediment from Reaching Receiving Waters)

Yes. The Chino Basin Watermaster has identified the change in recharge over the Chino Basin that occurred from the change in land use from native through agriculture and urban development and recently reported it in 2013 Chino Basin Groundwater Model Update and Redetermination of Safe Yield.[12] Figure 3, abstracted from the aforementioned report, shows the time history of storm water recharge in the channels that cross the Chino Basin from the San Gabriel Mountains to the Santa Ana River and the decline in recharge due to the concrete-lining of the major drainages that cross the basin from the San Gabriel Mountains to the Santa Ana River. The water budget tables in Section 3 of the aforementioned report show how historical land use, flood control, and other water management practices have reduced the recharge to the basin. Section 7 shows similar tables for historical projected land use, current flood control management, and projected water management practices.

3.2 Water Quality Compliance (Guidelines Section V)

3.2.1 Plan Identifies Activities that Generate or Contribute to the Pollution of Storm Water or Dry Weather Runoff, or that Impair the Effective Beneficial Use of Storm Water or Dry Weather Runoff [Water Code Section 10562(d)(7)]

Yes. Please see Sections 2 and 3 of the Phase 1 OBMP Report[13]and Sections 3 and 7 of the 2013 Chino Basin Model Update and Recalculation of Safe Yield[14] report. These documents describe how historical land use changes and stormwater management have impacted the discharge of storm water and dry-weather runoff in the major drainages that traverse and recharge the Chino Basin. Section 2 of the 2014 State of the Basin Report[15] illustrates the cumulative impacts of land use and storm water management in the Chino Basin Watershed have impacted the storm water discharge in the Santa Ana River at Prado Dam.

[12] See Sections 3 and 7 of 2013 Chino Basin Model Update and Recalculation of Safe Yield Pursuant to the Peace Agreement located here: http://www.ieua.org/referenced-documents/. .

[13] See Sections 2 and 3 of the Chino Basin Optimum Basin Management Program Report located here: http://www.ieua.org/referenced-documents/.

[14] See Sections 3 and 7 of the 2013 Chino Basin Model Update and Recalculation of Safe Yield Pursuant to the Peace Agreement located here: http://www.ieua.org/referenced-documents/.

[15] See Section 2 of the 2014 State of the Basin Report located here: http://www.cbwm.org/rep_engineering.htm

3.2.2 Plan Describes How It Is Consistent and Assists in, Compliance with Total Maximum Daily Load Implementation Plans and Applicable National Pollutant Discharge Elimination System Permits [Water Code Section 10562(b)(5)]

Yes. The 2001 RMP projects were incorporated into the Santa Ana River Watershed Water Quality Control (Basin) Plan in Regional Board Resolution R8-2004-0001[16] as part of the salt and nutrient management plan for the Chino Basin. The Santa Ana Regional Water Quality Control Board (Water Board) subsequently included "completion" and "operation" of the storm water recharge projects into the recycling permits issued to the IEUA and Watermaster; the permits were issued in Water Board Resolutions R8-2005-0033, R8-2007-0039, and R8-2009-0057.[17] The TDS and nitrogen concentration limits in the recycling permit are dependent on increasing storm water recharge pursuant to the OBMP and the 2001 RMP. The IEUA and Watermaster are fully compliant with the permit requirements. Note also that the 2001 RMP and proposed 2013 RMPU facilities intercept and recharge all dry-weather runoff that is tributary to them.

3.2.3 Plan Meets Applicable Permits and Describes How It Meets all Waste Discharge Permit Requirements [Water Code Section 10562(b)(5)]

Yes. See explanation provided in 3.2.2 immediately above regarding IEUA NPDES/water recycling permits that require the time-certain construction of storm water recharge improvements. The IEUA and the Watermaster are fully compliant with these permits.

The Chino Basin Watermaster has acquired water rights to divert storm water for recharge in the Chino Basin. These permits, their priority dates, annual diversion limits, instantaneous diversion rates, and diversion periods are listed below.

[16] See Section 5 Implementation of the Santa Ana Water Quality Control Plan located here: http://www.waterboards.ca.gov/santaana/water_issues/programs/basin_plan/index.shtml

[17] The Water Board requires compliance with the maximum benefit demonstrations, including the construction and operation of the 2001 RMP facilities. See the following historical issuance of permits that requires the construction and operation of the 2001 RMP facilities and the storm water dilution requirements are located here: http://www.waterboards.ca.gov/santaana/board_decisions/adopted_orders/orders/2005/05_033_wdr_ieua_cbw_04152005.pdf, http://www.waterboards.ca.gov/santaana/board_decisions/adopted_orders/orders/2007/07_039_wdr_ieuacbw_cbrwgrp_06292007.pdf, http://www.waterboards.ca.gov/santaana/board_decisions/adopted_orders/orders/2009/09_057_amending_07-0039_ieua_cbw_phase1_2.pdf

Permit Number	Priority Date	Annual Diversion Limit (afy)	Instantaneous Diversion Rate (cfs)	Diversion Period
19895	6/10/1985	15,000	179	11/1 to 4/30
20753	4/9/1987	27,000	440	10/1 to 5/1
21225	11/4/2002	68,500	115,570	1/1 to 12/31
Total	--	110,500	116,189	--

The IEUA constructed and has been operating monitoring equipment that enables them to compute the amount of storm water and dry-weather runoff recharge and reports this information to Watermaster. Watermaster prepares an annual report and submits it to the SWRCB, describing the amount of storm water and dry-weather runoff that is diverted and recharged and the change in discharge and relative change in discharge for each tributary to the Santa Ana River due to these diversions. Watermaster is fully compliant with all of its water rights permit requirements.

3.3 Organization, Coordination, Collaboration (Guidelines Section VI.B)

3.3.1 Local Agencies and Nongovernmental Organizations Were Consulted in Plan Development [Water Code Section 10565(a)]

Yes. Extensive coordination and outreach occurred in the development of the 2013 RMPU, including nine public community workshops[18] and 67 steering committee meetings.[19] Attendees included public agencies (regional water management, retail water agencies, flood control districts, and regulatory agencies), private water companies, and members of the public. Please see the Watermaster ftp site [20]; provided here are the sign-in sheets, agendas, and meeting materials for the 67 recharge master plan steering committee meetings that occurred through the development of the 2013 RMPU and the subsequent meetings in 2014 and 2015 related to its implementation.

See the 2013 RMPU, Section 8[21] and more specifically the implementation plan therein that identifies the public agencies, one private water company (Fontana Water Company), and one private business (CSI) required to implement the plan. In addition to steering committee meetings, regular progress reports were included at IEUA, Watermaster, CBWCD, and SBCFCD board meetings. This process continues through monthly Recharge Investigation and Projects Committee (RIPCom) meetings[22] and updates at IEUA, Watermaster, CBWCD, and SBCFCD board meetings.

[18] The workshop agendas and presentation materials are located here: http://52.32.17.3:7777/

[19] The agendas, presentation materials, and sign-in sheets are located here: http://www.cbwm.org/FTP/CB%20RMPU%20Steering%20Committee/Meetings%20By%20Date/

[20] Ibid

[21] See the 2013 RMPU, Section 8 located here: http://www.ieua.org/referenced-documents/.

[22] The agendas, presentation materials, and sign-in sheets are located here: http://www.cbwm.org/FTP/Recharge%20Investigations%20and%20Projects%20Committee%20(RIPCom)/

3.3.2 Community Participation Was Provided for in Plan Development [Water Code Section 10562(b)(4)]

Yes. See section 3.3.1 above.

3.3.3 Plan Includes Description of the Existing Integrated Regional Water Management Group(s) Implementing an Integrated Regional Water Management Plan

Yes. The Santa Ana Watershed Project Authority (SAWPA) led a collaborative process with public agencies, private utilities, and NGO stakeholders in the watershed and subsequently prepared and adopted an IRWMP called OWOW 2.0. The entities implementing OWOW 2.0 can be found at the OWOW 2.0 website.[23] The IEUA, Watermaster, the CBWMD, and the SBCFCD participated in the development of OWOW 2.0.

The IEUA, Watermaster, the CBWCD, and the SBCFCD are working with SAWPA to incorporate the Chino Basin SWRP into OWOW 2.0 will occur in March 2016. The types of projects included in the 2013 RMPU are consistent with those recommended for optimization and prioritization (see OWOW 2.0, Section 5.8,) and cited here:

> "Existing FCD (flood control district) basin and facility retrofit evaluation and implementation studies (MS4 Permit requirement): Determine stormwater capture and groundwater recharge potential, concomitant with continued flood protection requirements, for FCD flood control district] facilities throughout the SAR [Santa Ana River] Watershed. Develop list of priorities for implementation, and consult with potential project partners."

The IEUA, Watermaster, the CBWCD, the SBCFCD, public water agencies, private water retailers, municipal water users, agricultural water users, industrial water users, and other stakeholders in the Chino Basin area have worked together over four years to identify recharge opportunities with multiple benefits, to analyze them to determine recharge potential, to design the structural and operational improvements required to increase recharge, and to prioritize these improvements. The OWOW 2.0 recommendation regarding the retrofit of existing "FCD" facilities comes in part due to the successful recharge projects developed in existing FCD facilities in the 2001 RMP by the IEUA, Watermaster, the CBWCD, and the SBCFCD.

3.3.4 Plan Includes Identification of and Coordination with Agencies and Organizations (Including, but Not Limited to Public Agencies, Nonprofit Organizations, and Privately Owned Water Utilities) that Need to Participate and Implement Their Own Authorities and Mandates in Order to Address the Storm Water and Dry Weather Runoff Management Objectives of the Plan for the Targeted Watershed

Yes. See section 3.3.1 above.

[23] See Section 2.2 of OWOW 2.0, located at http://www.sawpa.org/owow-2-0-plan-2/

3.3.5 Plan Includes Identification of Nonprofit Organizations Working on Storm Water and Dry Weather Resource Planning or Management in the Watershed

No. Nonprofit organizations have not been engaged in the development of the 2016 Chino Basin SWRP. IEUA and the Watermaster will engage with them in the future.

3.3.6 Plan Includes Identification and Discussion of Public Engagement Efforts and Community Participation in Plan Development

Yes. See section 3.3.1 above.

3.3.7 Plan Includes Identification of Required Decisions That Must be Made by Local, State or Federal Regulatory Agencies for Plan Implementation and Coordinated Watershed-Based or Regional Monitoring and Visualization

Yes, in part, but not all required decisions have been identified. Please see Section 8 of the 2013 RMPU[24], specifically the implementation plan for a description of the permits and decisions that are presently known to be required. The permits and decisions required will be determined after preliminary designs are completed and the CEQA documents for the projects are certified in the fall of 2016. A list of required decisions will be prepared then.

3.3.8 Plan Describes Planning and Coordination of Existing Local Governmental Agencies, Including Where Necessary New or Altered Governance Structures to Support Collaboration among Two or More Lead Local Agencies Responsible for Plan Implementation

Yes. See section 3.3.1 above. Note that the existing governance structures did not need to be altered to develop the 2016 SWRP.

3.3.9 Plan Describes the Relationship of the Plan to Other Existing Planning Documents, Ordinances, and Programs Established by Local Agencies

Yes. The IEUA and the Watermaster have an existing agreement that describes their cost sharing of the 2001 RMP facilities and other recharge facilities that have been constructed since 2001.[25] The IEUA and Watermaster are in a process to revise this agreement to finance the construction of the 2013 RMPU facilities. The revised agreement will be completed in the fall of 2016.

[24] Please see Section 8 of the 2013 RMPU, located here: http://www.ieua.org/referenced-documents/.

[25] The existing agreement between the IEUA and Watermaster for financing the construction of recharge facilities is located here: http://www.ieua.org/referenced-documents/.

The IEUA, Watermaster, the CBWCD, and the SBCFCD are updating their existing "Four-Party" agreement[26] that was used to implement the 2001 RMP and to operate and maintain the facilities. The revised agreement will be completed in the fall of 2016. The Four-Party agreement spawned the Groundwater Recharge Coordinating Committee (GRCC), which meets quarterly and as required to plan recharge operations and maintenance, to develop annual budgets, and to develop solutions to problems as they occur. The GRCC has been in existence since the implementation of the 2001 RMP projects.

An agreement between the IEUA, Watermaster, and California Steel Industries (CSI) will be prepared and completed by the end of 2016 to enable the IEUA to construct the 2013 RMPU recharge improvements on CSI property.

3.3.10 (If Applicable) Plan Explains Why Individual Agency Participation in Various Isolated Efforts is Appropriate

No. Not applicable to the 2016 Chino Basin SWRP.

3.4 Quantitative Methods (Guidelines Section VI.C)

3.4.1 For All Analyses: Plan Includes an Integrated Metrics-Based Analysis to Demonstrate That the Plan's Proposed Storm Water and Dry Weather Capture Projects and Programs Will Satisfy the Plan's Identified Water Management Objectives and Multiple Benefits

Yes. The 2013 RMPU consists of nine projects that will reduce storm water and dry-weather runoff discharges through recharge in spreading basins. The projected increase in storm water recharge will average about 5,500 acre-ft/yr. These same improvements will increase recycled water recharge capacity by 7,100 acre-ft/yr. Imported SWP water demands will thus decrease by 12,600 acre-ft/yr (equal to the sum of 5,500 acre-ft/yr of storm water recharge plus 7,100 acre-ft/yr of recycled water recharge). The reduced delivery of imported SWP water supplies will subsequently reduce the greenhouse gas emissions created by transporting imported water to Basin water users.

New storm water recharge was estimated using a sophisticated numerical surface water modeling approach that estimates the discharge available for diversion at each potential recharge project; routes the discharge through the basin; operates the basins for flood control and water conservation; and estimates recharge, evaporation, and discharge from the facility. The recharge estimates are based on a daily precipitation time history for the 61-year period of 1950 through 2010 and on 2010 land use and drainage conditions. The model is calibrated using the

[26] The existing "Four Party" agreement between the IEUA, Watermaster, the CBWCD, and the SBCFCD is located here: http://www.ieua.org/referenced-documents/.

monitoring data developed by the IEUA and the USGS. The results of the modeling work are summarized in Section 8 of the 2013 RMPU report. [27, 28]

The projected increase in dry-weather runoff recharge is presently unknown and will be determined during the design of the facilities. The increase in dry-weather runoff will eliminate the discharge of all dry-weather runoff originating upstream of the recharge improvements and thus will reduce the pollutant loading to the downstream impaired water bodies (see Table 4 herein).

3.4.2 For Water Quality Project Analysis (Section VI.C.2.a): Plan Includes an Analysis of How Each Project and Program Complies with or Is Consistent with an applicable NPDES Permit. The Analysis Should Simulate the Proposed Watershed-Based Outcomes Using Modeling, Calculations, Pollutant Mass Balances, Water Volume Balances, and/or Other Methods of Analysis. Describes How Each Water Project or Program Will Contribute to the Preservation, Restoration, or Enhancement of Watershed Processes (as Described in Guidelines Section VI.C.2.a)

Yes. The 2013 RMPU projects are recharge projects whose primary function is to increase the sustainable yield of the Chino Basin. This new recharge provides quantifiable benefits to the groundwater basin and un-quantified benefits to surface water. The water quality benefits to groundwater are derived from the recharge of storm water with low TDS and low nitrate concentrations. This helps to reduce the TDS and nitrate concentration impacts from return flows from historical and on-going agricultural activities and dilutes the TDS and nitrate loading from the recharge of recycled water. The IEUA and Watermaster conduct monitoring for the recharge projects constructed in the 2001 RMP, and this monitoring will be expanded when the 2013 RMPU projects are implemented. Monitoring will include discharge, stage, groundwater level, and surface and ground water quality. The IEUA and Watermaster are currently updating/preparing an antidegradation analyses for the 2013 RMPU projects to project the TDS and nitrogen impacts to Chino Basin from current and proposed recharge projects and other basin management activities. This antidegradation analysis will be included in the CEQA document to be published in late 2016 for the 2013 RMPU. Historically, the IEUA has prepared antidegradation analyses and reported the results to the Watermaster and the Water Board. The IEUA prepares an antidegradation analysis about every five years coincident with permit renewal. The antidegradation analysis will use historical data and future projections to estimate the TDS and nitrogen impacts to groundwater from the recharge of storm water, dry-weather runoff, recycled water, and other sources of recharge, and provide impact attribution to each

[27] See Section 8 of 2013 Amendment to the 2010 Recharge Master Plan Update (2013 RMPU): http://www.ieua.org/referenced-documents/.

[28] See Appendix B, 2013 Chino Basin Model Update and Recalculation of Safe Yield Pursuant to the Peace Agreement, October 2015, WEI: http://www.cbwm.org/docs/engdocs/WEI%202013%20CBWM%20Recalculation%20Model%20Update/20151005_WEI_2013_CBWM_Recal_Model_Final_low.pdf

source of recharge. This information has and will be reported to the IEUA, Watermaster, the CBWCD, the SBCWD, and the Water Board.

The surface water quality impacts and benefits from recharge of dry-weather runoff from the 2013 RMPU project implementation will be developed and reported in the CEQA document to be published in late 2016 for the 2013 RMPU.

3.4.3 For Storm Water Capture and Use Project Analysis (Section VI.C.2.b): Plan Includes an Analysis of How Collectively the Projects and Programs in the Watershed Will Capture and Use the Proposed Amount of Storm Water and Dry Weather Runoff

Yes. New storm water recharge was estimated using a sophisticated numerical surface water modeling approach that estimates the discharge available for diversion at each potential recharge project; routes the discharge through the basin; operates the basins for flood control and water conservation; and estimates recharge, evaporation, and discharge from the facility. The recharge estimates are based on a daily precipitation time history for the 61-year period from 1950 through 2010 and on 2010 land use and drainage conditions. The results of the modeling work are summarized in Section 8 of the 2013 Recharge Master Plan Report. [29, 30]

Since the 2001 RMP projects were constructed, The IEUA has monitored their performance and prepares estimates of the amount of storm water recharged due to the 2001 RMP projects, and Watermaster subsequently allocates the storm water and dry-weather recharge attributable to the 2001 RMP projects to the municipal water agencies that are parties to the Chino Basin Judgment (the Community). The municipal water agencies then produce this water to meet their demands. Watermaster does this on an annual basis and includes this calculation in its annual assessment package. In this way, the new recharge is allocated out to the municipal water agencies that are parties to the Chino Basin Judgment (the Community) and subsequently produced. The basis for this allocation is the Chino Basin Judgment. Watermaster will allocate the new recharge from storm water and dry-weather runoff from the 2013 RMPU projects in an identical way. The projected increase in storm water recharge will average about 5,500 acre-ft/yr and the projected increase in recycled water recharge will average about 7,100 acre-ft/yr. The increase in dry-weather runoff capture and recharge is presently unknown and will be determined later this year when the bulk of the 2013 RMPU project final designs are completed. Demand for imported SWP water will decrease by, at a minimum, the combined amount of storm, dry-weather runoff, and recycled water recharge, and will equal 12,600 acre-ft/yr. When quantified through monitoring by the IEUA and Watermaster, the dry-weather runoff recharge will further reduce the demand for imported SWP water.

[29] See Section 5 and Appendix C of the 2010 RMPU, 2010, WEI, located here: http://52.32.17.3:7777/

[30] See Section 8 of 2013 RMPU, 2013, WEI, located here: http://www.ieua.org/referenced-documents/.

3.4.4 For Water Supply and Flood Management Project Analysis (Section VI.C.2.c): Plan Includes an Analysis of How Each Project and Program Will Maximize and/or Augment Water Supply

Yes. See discussion for 3.4.3.

3.4.5 For Environmental and Community Benefit Analysis (Section VI.C.2.d): Plan Includes a Narrative of How Each Project and Program Will Benefit the Environment and/or Community, with Some Type of Quantitative Measurement

Yes. See discussion for 3.4.2.

3.4.6 Data Management (Section VI.C.3): Plan Describes Data Collection and Management, Including: a) Mechanisms by Which Data Will Be Managed and Stored; b) How Data Will Be Assessed by Stakeholders and the Public; c) How Existing Water Quality and Water Quality Monitoring Will Be Assessed; d) Frequency at Which Data Will Be Updated; and e) How Data Gaps Will Be Identified

Yes. Data has been and will be managed as follows:

a. Mechanism by which data will be managed and stored:

    i. The IEUA and Watermaster conduct extensive surface water, groundwater, and ground level monitoring programs using conventional and satellite monitoring techniques, including:

        (1) groundwater level, production, and water monitoring throughout the Chino Basin, including specialized monitoring near all recharge facilities;

        (2) surface water discharge, diversion, and water quality monitoring throughout the Chino Basin with specialized monitoring at recharge facilities to accurately assess inflow, recharge, evaporation, and discharge from each facility, and to assess the impacts to downstream resources and the Santa Ana River

    ii. The IEUA stores the stage data collected at the recharge basins in its SCADA historian database. This stage data acquired at the recharge facilities and all other monitoring data is stored in a relational database managed by Watermaster, using the HydroDaVE^{sm} managed service platform (HDMS).

b. How data will be accessed by stakeholders and the public?

    i. The IEUA, Watermaster, the CBWCD, and the SBCFCD have complete access to all of the monitoring data maintained in the Watermaster's relational database through HDMS and, for some private wells, by request to the Watermaster. The IEUA, Watermaster and the SBCFCD have SCADA terminals in their offices that enable them real time monitoring of the recharge facilities.

c. How existing water quality and water quantity monitoring will be assessed?

i. The IEUA and Watermaster have joint reporting obligations to the Water Board pursuant to Water Board resolutions R8-2004-0001, R8-2007-0039, and R8-2009-0057. These resolutions require periodic reporting of ground and surface water data, ambient groundwater quality determinations, assimilative capacity determinations, antidegradation analyses, and direct comparisons of monitoring results to permit limits.

ii. Watermaster produces a comprehensive assessment of hydrologic conditions, including an extensive assessment of water quality, every two years in its State of the Basin reports.

iii. Watermaster conducts an annual assessment of the increase in groundwater recharge at each of the 2001 RMP projects and will do so for the recharge projects in the 2013 RMPU. Watermaster uses this information to adjust pumping rights for parties to the Chino Basin Judgment.

iv. Watermaster and the IEUA review the infiltration rates developed from monitoring data to program maintenance activities at each of the 2001 RMP projects and will do so for the recharge projects in the 2013 RMPU.

d. Frequency at which data will be updated

i. Groundwater level data is acquired at either a 15-minute or monthly interval. For wells near recharge basins, groundwater levels are measured at a 15-minute interval.

ii. Groundwater quality data is acquired at various time intervals ranging from monthly to every three years. For wells and lysimeters at and near recharge basins, the sampling rate ranges from every two weeks to every three months.

iii. Stage in recharge basins using sensors connected to the IEUA SCADA is measured continuously. Stage measurements from staff gage readings are acquired as necessary but no greater than weekly when water is present in the recharge basins.

iv. Surface discharge measurements are collected continuously for most stormwater diversions to recharge basins and all imported and recycled water conveyed to recharge basins with meters that are connected to the IEUA's SCADA system.

v. Surface water quality is collected when present in the recharge basins at various frequencies pursuant to permit and hydrologic conditions.

vi. Watermaster acquires ground and surface water data from: all the water agencies that utilize the Chino Basin, the Water Board and Department of Toxic Substances Control, the USGS and the ACOE, and NOAA. These data are updated quarterly.

e. How data gaps (for which additional monitoring is needed) will be identified?

i. The IEUA and Watermaster have developed their monitoring programs to meet the legal requirements of agreements, for regulatory compliance and to answer specific research question related to resource management. The data streams generated by

these programs are reviewed continuously to ensure that the data is accurate, complete, and responsive to the management goals

ii. Monitoring needs are periodically (not less than annually) evaluated, and monitoring programs are revised in response to evolving management programs, questions, and regulatory requirements.

3.5 Identification and Prioritization of Projects (Guidelines Section VI.D)

3.5.1 Plan Identifies Opportunities to Augment Local Water Supply through Groundwater Recharge or Storage for Beneficial Use of Storm Water and Dry Weather Runoff [Water Code Section 10562(d)(1)]

Yes. See discussion in 3.4.3.

3.5.2 Plan Identifies Opportunities for Source Control for Both Pollution and Dry Weather Runoff Volume, Onsite and Local Infiltration, and Use of Storm Water and Dry Weather Runoff [Water Code Section 10562(d)(2)]

Yes. The storm water and dry-weather runoff recharge projects will reduce the quantity of storm and dry-weather runoff that reaches the unlined parts of the four primary drainages that traverse the Chino Basin and the Santa Ana River, thereby reducing pollutant loads to those water bodies. The surface water quality benefits from the recharge of storm water and dry-weather runoff from the 2013 RMPU project implementation will be developed and reported in the CEQA documents for the 2013 RMPU to be published later in 2016.

The 2013 RMPU implementation includes a process to create a database of all known local storm water and dry-weather runoff management projects implemented through the MS4 permits in the Riverside and San Bernardino County parts of the Chino Basin. The project types, physical characteristics, and time histories of maintenance are being stored in the database for periodic review with the intent of incorporating them into surface water and groundwater models. The surface water model will be used to estimate the new storm water and dry-weather runoff recharge in the Chino Basin that is created by these projects. The groundwater model will be used to evaluate the groundwater basin response and net new recharge to the basin and to subsequently reset the basin safe yield. The water quality benefits to the Chino Basin and the Santa Ana River will be estimated every five years starting in 2020 when the Chino Basin Recharge Master Plan is updated and every five years thereafter.

3.5.3 Plan Identifies Projects That Reestablish Natural Water Drainage Treatment and Infiltrations Systems, or Mimic Natural System Functions to the Maximum Extent Feasible [Water Code Section 10562(d)(3)]

Yes. For new development and redevelopment, this will occur via the MS4 permits for Los Angeles, Riverside, and San Bernardino Counties for those parts of the Chino Basin Watershed.

The 2013 RMPU will establish a database of all the MS4 projects that have been constructed since 2011 and, as mentioned in 3.5.2 above, will assess their performance and benefits starting in 2020 when the Chino Basin Recharge Master Plan is updated and every five years thereafter.

The construction of new recharge basins and improvements at existing storm water management/recharge basins will increase storm water and dry-weather recharge and offset, in part, the increase in imperviousness in the watershed and the concrete channel lining that has occurred in the past.

The IEUA and Watermaster recharge permit issued by the Regional Board recognizes that soil aquifer treatment is occurring in storm, dry-weather runoff and recycled water recharge. The IEUA has done extensive monitoring of SAT performance at the recharge facilities constructed in the 2001 RMP. IEUA utilizes lysimeters and groundwater wells to assess the fate of total organic carbon and nitrogen and prepares quarterly and annual reports of its data and findings for submission to the Regional Board.

3.5.4 Plan Identifies Opportunities to Develop, Restore, or Enhance Habitat and Open Space through Storm Water and Dry Weather Runoff Management, Including Wetlands, riverside habitats, parkways, and parks [Water Code Section 10562(d)(4)]

Yes. The IEUA is working in a partnership with the other regional water agencies in the Santa Ana River Watershed, including the Eastern Municipal Water District, the Orange County Water District, the San Bernardino Valley Municipal Water District, and the Western Municipal Water District to develop the Upper Santa Ana River Habitat Conservation Plan (USARHCP). One of the goals of the USARHCP is identify key habitat areas and to create a mitigation bank to enable their protection and/or the creation of new habitat. This plan should be completed in July 2017.

3.5.5 Plan Identifies Opportunities to Use Existing Publicly Owned Lands and Easements, Including, but not Limited to, Parks, Public Open Space, Community Gardens, Farm and Agricultural Preserves, School Sites, and Governments Office Buildings and Complexes, to Capture, Clean, Store, and Used Storm Water and Dry Weather Runoff either Onsite or Offsite [Water Code Section 10562(d)(5), 10562(b)(8)]

Yes. With the exception of one project (CSI, Project ID 18a) all projects are located on CBWCD, IEUA, or SBCFCD properties. Please see Section 8 of the 2013 RMPU.[32]

[32] Please see Section 8 of the 2013 RMPU, located here: http://www.ieua.org/referenced-documents/.

3.6 Identification and Prioritization of Projects (Guidelines Section VI.D)

3.6.1 For New Developments and Redevelopments (if Applicable): Plan Identifies Design Criteria and Best Management Practices to Prevent Storm Water and Dry Weather Runoff Pollution and Increase Effective Storm Water and Dry Weather Runoff Management for New and Upgraded Infrastructure and Residential, Commercial, Industrial, and Public Development [Water Code Section 10562(d)(6)]

Yes. The land use control agencies in the Chino Basin Watershed area are subject to MS4 permits issued by the Los Angeles and Santa Ana Regional Water Quality Control Boards. The 2010 RMPU contains language that encourages the use of recharge as the means of compliance with these permits[33] through the allocation of the new recharge in the form of groundwater production rights in the basin. Section 5 of the 2013 RMPU[34] contains provisions that are being implemented by Watermaster to collect information on all local storm water and dry-weather runoff management and MS4 projects, store that information in a relational data base, and on a five year frequency, to use that information to calculate the new recharge created by these projects and allocate that recharge to the municipal water agencies with groundwater production rights in the basin.

3.6.2 Plan Uses Appropriate Quantitative Methods for Prioritization of Projects (This Should Be Accomplished by Using a Metrics-Based and Integrated Evaluation and Analysis of Multiple Benefits to Maximize Water Supply, Water Quality, Flood Management, Environmental, and Other Community Benefits within the Watershed) [Water Code Section 10562(b)(2)]

Yes. See Sections 6, 7, and 8 in the 2013 RMPU.[35] Section 6 of the 2013 RMPU includes a comprehensive list of all the storm water and dry-weather runoff recharge projects in the Chino Basin, as identified by the IEUA, Watermaster, the CBWCD, the SBCFCD, the cities, and the water districts. Section 7 of the 2013 RMPU describes the development and selection of the criteria used to screen the projects listed in Section 6. Section 8 describes the application of the criteria from Section 7 to the list of projects in Section 6 and the selection of the nine projects shown in Table 8-2c of Section 8, an updated version of which is included herein as Table 2.

[33] See Section 7 of the 2010 RMPU, located here: http://www.ieua.org/referenced-documents/.

[34] See Section 5 of the 2013 RMPU, located here: http://www.ieua.org/referenced-documents/.

[35] See Sections 6, 7, and 8 of the 2013 RMPU, located here: http://www.ieua.org/referenced-documents/.

3.6.3 *Overall:* Plan Prioritizes Projects and Programs Using a Metric-Driven Approach and a Geospatial Analysis of Multiple Benefits to Maximize Water Supply, Water Quality, Flood Management, Environmental, and Community Benefits Within the Watershed

Yes. See Section 3.4.1 and Section 3.6.2 immediately above.

3.6.4 *Multiple Benefits:* Each Project in Accordance with the Plan Contributes to at Least Two or More Main Benefits and the Maximum Number of Additional Benefits as Listed in Table 4 of the Guidelines (Benefits are not counted twice if they apply to more than one category)

Yes. Implementation of the 2013 RMPU provides three of the benefits listed in Table 4 of the 2015 Guidelines, as described below.

a. Water Quality. The RMPU projects will reduce storm water discharge to the Santa Ana River and the Prado Basin, thus reducing the pollutant loading from urban storm water. The 2013 RMPU projects will completely divert dry-weather runoff that is tributary to them, also reducing pollutant loading to the Santa Ana River and the Prado Basin. San Antonio/Chino Creek and Cucamonga/Mill Creek are listed on the 303 (d) list as impaired water bodies, as characterized in Table 4. The diversion improvements for the Montclair Basins and the basin expansion for the Ely and Turner Basins will reduce both the storm water and dry-weather runoff discharge to the Santa Ana River and Prado Basin.

b. Water Supply Reliability. Implementation of the 2013 RMPU will increase storm water recharge on average by 5,500 acre-ft/yr and increase recycled water recharge capacity by 7,100 acre-ft/yr. The increase in dry-weather runoff recharge is currently unknown and will be quantified in the design process for the 2013 RMPU that will be completed in late 2016. Thus implementation of the 2013 RMPU will increase local water supplies by at least 12,600 acre-ft/yr and reduce dependence on imported SWP water by a like amount. The increase in recharge capacity created by the implementation of the 2013 RMPU will increase the capacity of future conjunctive use programs, enabling the larger amount of imported water to be recharged in the basin when surplus imported supplies available. The decrease in demand for imported SWP water and greater capacity for conjunctive use provide benefits to the region and the State.

c. Environmental. Reducing the demand for imported SWP water will reduce greenhouse gas generation attributed to conveying SWP to the Chino Basin. This reduction in greenhouse gas generation is a benefit to the region, the state, and the world.

3.7 Implementation and Strategy and Schedule (Guidelines Section VI.E)

3.7.1 Plan Identifies Resources for Plan Implementation, Including: 1) Projection of Additional Funding Needs and Sources for Administration and Implementation Needs; and 2) Schedule for Arranging and Securing Plan Implementation Financing

1. Yes. Projection of additional funding needs and sources for administration and implementation needs, above and beyond the needs of the existing storm water management plans and/or integrated regional water management plans.

   IEUA is currently working with Watermaster to finalize the financing plan and agreement to construct the 2013 RMPU projects which is expected to be complete by the end of April 2016. The construction costs for projects that capture and recharge storm water and dry-weather runoff only will be paid for by Watermaster. The construction costs for projects that capture and recharge storm water, dry-weather runoff, and recycled water will be paid for as follows: fifty percent by Watermaster and fifty percent by the IEUA. The amount of construction costs to be financed for each project is equal to the construction cost less any grant funding received for the project. The IEUA will provide debt financing through the Chino Basin Regional Financing Authority for the project and will annually invoice Watermaster for its share of the construction cost. Watermaster, in turn, will assess the parties to the Judgment based on an agreed to formula among the Watermaster parties. This is the same method of cost allocation and construction financing that was successfully used by the IEUA and Watermaster in the implementation of the 2001 RMP.

2. Yes. Schedule for arranging and securing Plan implementation financing, including identification of phased Plan implementation.

   Table 3 lists the 2013 RMPU projects, implementation schedule, and cost projections in the absence of obtaining grants. Table 2 lists the cost of each 2013 RMPU project. Grant funding from Proposition 1 would reduce these costs. The schedule for arranging and securing Plan implementation financing is currently in preparation and will be available in late 2016.

3.7.2 Plan Projects and Programs Are Identified to Ensure the Effective Implementation of the Storm Water Resource Plan Pursuant to This Part and Achieve Multiple Benefits [Water Code Section 10562(d)(8)]

Yes. The projects selected for implementation (listed in Table 2) were exhaustively evaluated and vetted in a technically sound and transparent process. The boards of the IEUA and Watermaster have approved the 2013 RMPU and specifically these projects. Preliminary design reports, environmental investigations, and implementation agreements are being prepared for each of the projects listed in Table 2. The IEUA and the Watermaster monitor the recharge projects constructed from the 2001 RMP to estimate, among other things, storm water and dry-weather runoff recharge. Each of the new recharge projects in the 2013 RMPU will be

monitored to estimate storm water and dry-weather runoff recharge to ensure that the multiple benefits are quantified and realized.

3.7.3 The Plan Identifies the Development of Appropriate Decision Support Tools and the Data Necessary to Use the Decision Support Tools [Water Code Section 10562(d)(8)]

Yes. The decision support tools utilized by the IEUA and Watermaster include: an extensive relational database that stores climatic, surface water, and groundwater data, and sophisticated numerical models that are used to simulate daily storm water discharge, route the discharge through the Chino Basin Watershed area, and estimate the recharge performance of the recharge facilities. The monitoring data are used to evaluate the historical performance of the recharge facilities, assess the need for maintenance, assess groundwater response, and update and calibrate surface water and groundwater models. The surface and groundwater models are routinely updated, reviewed by the stakeholders, and used in periodic planning efforts, including recharge master plan updates.

3.7.4 Plan Describes Implementation Strategy, Including: a) Timeline for Submitting Plan into Existing Plans, as Applicable; b) Specific Actions by Which Plan Will Be Implemented; c) All Entities Responsible for Project Implementation; d) Description of Community Participation Strategy; e) Procedures to Track Status of Each Project; f) Timelines for All Active or Planned Projects; g) Procedures for Ongoing Review, Updates, and Adaptive Management of the Plan; and h) A Strategy and Timeline for Obtaining Necessary Federal, State, and Local Permits

Yes. See text below:

a. Timeline for submitting the SWRP into the existing Integrated Regional Water Management Plan (IRWMP).

   The IRWMP for the Santa Ana Watershed, OWOW 2.0, is administered by SAWPA. The IEUA is submitting the 2016 Chino Basin SWRP to the OWOW 2.0 steering committee for its review and subsequent recommendation to the SAWPA commission for their approval to include the 2013 RMPU into OWOW 2.0. The 2016 Chino Basin SWRP will be included into OWOW 2.0 in March 2016.

b. Implementation activities.

   Table 3 lists the status and schedule for the major milestones for implementation of the 2013 RMPU projects that are included in the 2016 Chino Basin SWRP. The IEUA is administering the contracts for all implementation activities. The RIPCom, IEUA Board and Watermaster Board meets monthly to review progress and budget and provide recommendations and direction regarding implementation.

c. Entities responsible for implementation.

   The entities responsible for implementation are listed below:

i. IEUA. The IEUA is responsible for coordinating and implementing the 2013 RMPU projects pursuant to an agreement with the CBWCD, Watermaster, and the SBCFCD. This agreement is currently being reviewed and may be revised in the near future. The IEUA also owns the RP3 basins. One of the 2013 RMPU projects involves increasing conservation storage at the RP3 facility for storm water and dry-weather runoff recharge. The IEUA will review and approve design plans for facilities constructed on their property and provide permits for construction and subsequent operations and maintenance of the project. The IEUA will conduct monitoring to enable estimating of the inflow and outflow hydrograph, storm water and dry-weather runoff recharge, and evaporation at each recharge facility. The IEUA will coordinate the operation and maintenance of all 2013 RMPU projects.

ii. The SBCFCD owns most of the property and facilities that will be used to construct storm water and dry-weather runoff recharge projects. The SBCFCD was involved in the development of the Plan and supports the 2013 RMPU projects. The SBCFCD will review and approve design plans for facilities constructed on their property and provide permits to the IEUA for construction and subsequent operations and maintenance of the projects.

iii. CBWCD. The CBWCD owns the Montclair Basins and one of the three Ely Basins. One of the 2013 RMPU projects involves the construction of a new inlet from San Antonio Creek to Montclair Basins 2 and 3. Another 2013 RMPU project involves the deepening of all three of the Ely basins to create more conservation storage. The CBWCD was involved in the development of and supports the 2013 RMPU projects. The CBWCD will review and approve design plans for facilities constructed on their property and provide permits to the IEUA for the construction and subsequent operations and maintenance of the projects.

iv. Watermaster. Watermaster was the co-lead in the development of the 2013 RMPU projects along with the IEUA, the CBWCD, and the SBCFCD.

Through the Judgment and the so-called Peace Agreements, Watermaster has the authority to manage all artificial recharge projects in the Chino Basin. Watermaster requires that all proposed recharge projects be subject to a material physical injury analysis and will only approve recharge projects that pose no potential material physical injury or where mitigation is proposed to prevent potential and/or actual material physical injury. Material physical injury will be evaluated in the CEQA process for each of the 2013 RMPU projects. Watermaster will conduct surface and ground water monitoring to evaluate the impacts of the new recharge created by the 2013 RMPU projects, to assess the increase in net recharge and safe yield, and to assess the water quality impacts.

d. Community participation strategy for Plan implementation.

RIPCom, Watermaster governance, CBWCD board, and IEUA board meetings are publically noticed and open to all. The community is invited to participate in all these meetings.

e. Procedure to track status of each element of the Plan.

The IEUA is responsible for coordinating the implementation of the 2013 RMPU. The IEUA prepares a monthly status report and reports on status at the monthly RIPCom meetings and at the Watermaster governance, CBWCD board, and IEUA board meetings.

f. Timeline for all active or planned project components and identification of the institutional structure that will ensure Plan implementation.

The timeline and status for the 2013 RMPU projects is listed in Table 3. The Four-Party Agreement was successfully used to implement the 2000 RMP. This agreement is being updated to incorporate the 2013 RMPU projects. The revised Four-Party Agreement should be completed and approved by late 2016.

g. Procedure for ongoing review, updates, and adaptive management of the Plan.

By agreement and Court Order, the IEUA and Watermaster will review and update the Chino Basin recharge master plan every five years starting in 2020. This periodic update also ensures the recharge master plan is adaptive. That said, the established GRCC and RIPCom meeting process ensures that the new recharge is accounted for and that recharge operations will be revised as necessary to ensure the maximum amount of recharge within the constraints of flood control.

h. General strategy and potential timeline for obtaining necessary federal, state, and local permits.

IEUA is working with SBVMWD and other partners (see Section 3.5.1) to develop the Upper Santa Ana River Habitat Conservation Plan (USARHCP). Upon completion of the USARHCP in late 2017, IEUA will be permitting with US Fish and Wildlife to operate and maintain its existing recharge facilities and planned recharge facilities in the 2013 RMPU. Construction permits from US Fish and Wildlife will be granted upon evaluation and completion of mitigation needs of the USARHCP. The mitigation bank will be completed in late 2018. IEUA's current US Army Corps of Engineers 404 permit expires in March 2017. IEUA is currently preparing an individual operation and maintenance 404 permit application that includes all existing and planned recharge facilities and should receive that permits by March 2017. Concurrent with the 404 permit application, IEUA is applying to update its 401 permit to include new recharge facilities.

3.7.5 Applicable IRWM Plan: The Plan Will Be Submitted, upon Development, to the Applicable Integrated Regional Water Management (IRWM) Group for Incorporation into the IRWM Plan [Water Code Section 10562(b)(7)]

Yes. The IRWMP for the Santa Ana Watersheds, OWOW 2.0, is administered by SAWPA. The IEUA is submitting the Chino Basin SWRP to the OWOW 2.0 steering committee for its review and subsequent recommendation to the SAWPA commission to include the 2013 RMPU into OWOW 2.0. The 2016 Chino Basin SWRP will be included in OWOW 2.0 in March 2016.

3.7.6 Plan Describes How Implementation Performance Measures Will be Tracked

Yes. The implementation Chino Basin SWRP will be tracked as follows:

a. Evaluation of the expected and actual outcomes of the Plan (i.e. water quality, water supply augmentation, other benefits).

   The IEUA will monitor each of the 2013 RMPU projects and the prior constructed 2001 RMP projects and, based on that monitoring, estimate the recharge performance for each storm and for dry-weather runoff and will subsequently aggregate these estimates for each month and year. This information will be subsequently reported to the Watermaster, CBWCD and the SBCFCE. These estimates will be continuously and critically reviewed to improve recharge performance and to achieve the recharge goals of the 2013 RMPU. This review will include the periodic update of the numerical surface water models used to plan and design the 2013 RMPU projects and to subsequently revise the long-term average recharge projections.

b. Quantification of the storm water management objectives, multiple benefits, and environmental outcomes.

   i. The IEUA and Watermaster will report the storm water and dry-weather runoff recharge and associated water quality as required by Water Board Resolutions R8-2004-0001, R8-2007-0039, and R8-2009-0057.

   ii. Watermaster will document the storm water and dry-weather runoff recharge, pollutants intercepted and quantified and provide this information to the public through RIPCom, the biennial State of the Basin report, and in its annual report to the SWRCB.

   iii. The IEUA and Watermaster will provide an annual accounting of the reduction in greenhouse gas generation due to the increase in availability of local supplies created by the implementation of the 2013 RMPU and the associated reduction in the use of imported SWP water.

c. The monitoring and information-management systems that will be used to gather performance data.

   See Section 3.4.6 above.

d. Mechanisms to adapt project operations and Plan implementation based on performance data collected.

   GRCC meetings are held at least quarterly and more often if needed. The members of the GRCC include the IEUA, Watermaster, the CBWCD, and the SBCFCD. The GRCC produced an Operating Procedure Manual to precisely define the operational parameters of each basin, contact lists, etc. The GRCC critically reviews the recharge performance of each recharge basin and ancillary facilities and updates operations and maintenance to improve recharge performance and reduce cost.

e. Mechanisms to share performance data with stakeholders.

The storm water and dry-weather runoff recharge is reported to RIPCom, the Watermaster governance committees and board, and the IEUA, CBWCD, and SBCFCD boards on a monthly basis, and is available on the IEUA and Watermaster websites.

3.8 Education, Outreach, Public Participation (Guidelines Section VI.F)

3.8.1 Outreach and Scoping: Community Participation Is Provided for in Plan Implementation [Water Code Section 10562(b)(4)]

Yes. Extensive public outreach was provided for in the development and scoping of the Chino Basin SWRP. The Watermaster's ftp[36] site contains agendas, presentation materials, and sign-in sheets for the 67 recharge master plan steering committee meetings that were held during 2013 RMPU development. In addition to the steering committee meetings, regular progress reports were included at IEUA, Watermaster, CBWCD, and SBCFCD board meetings. Public outreach and scoping involvement continues through the monthly Recharge Investigation and Projects Committee (RIPCom) meetings[37] and monthly updates at IEUA, Watermaster, CBWCD, and SBCFCD board meetings. All meetings are noticed. Monitoring data and performance of the projects after construction are presented to the public at IEUA, Watermaster, CBWCD, and SBCFCD board meetings.

Inclusion of the 2016 Chino Basin SWRP in the OWOW 2.0 has extended community participation to the entire Santa Ana River Watershed.

3.8.2 Plan Describes Public Education and Public Participation Opportunities to Engage the Public when Considering Major Technical and Policy Issues Related to the Development and Implementation

Yes. See 3.8.1 immediately above.

3.8.3 Plan Describes Mechanisms, Processes, and Milestones That Have Been or Will Be Used to Facilitate Public Participation and Communication during Development and Implementation of the Plan

Yes. See 3.8.1 above.

[36] Please see the Watermaster ftp site related to the 2013 RMPU, located here: http://www.cbwm.org/FTP/CB%20RMPU%20Steering%20Committee/Meetings%20By%20Date/

[37] Ibid

3.8.4 Plan Describes Mechanisms to Engage Communities in Project Design and Implementation.

Yes. See 3.8.1 above.

3.8.5 Plan Identifies Specific Audiences Including Local Ratepayers, Developers, Locally Regulated Commercial and Industrial Stakeholders, Nonprofit Organizations, and the General Public

Yes. See 3.8.1 above.

3.8.6 Plan Describes Strategies to Engage Disadvantaged and Climate Vulnerable Communities within the Plan Boundaries and Ongoing Tracking of their Involvement in the Planning Process

Yes. Strategies to engage disadvantaged and climate communities are contained and are being implemented in the OWOW 2.0 of which the IEUA, Watermaster, the CBWCD and SBCFCD are participants.

3.8.7 Plan Describes Efforts to Identify and Address Environmental Injustice Needs and Issues within the Watershed

Yes. Efforts to identify and address environmental injustice needs and issues within the watershed are being implemented in the OWOW 2.0 of which the IEUA, Watermaster, the CBWCD and SBCFCD are participants.

3.8.8 Plan Includes a Schedule for Initial Public Engagement and Education

Yes. See 3.8.1 above.

3.9 Compliance with Standard Provisions (Section V of Guidelines

The standard provisions as specified in the SWRP 2015 SWRCB Guidelines are described below in the order listed in Section V of the Guidelines commencing on pages 16 and 18.

3.9.1 A. California Environmental Quality Act Compliance

The storm water and dry-weather runoff capture and recharge plans as proposed in the 2013 RMPU are in compliance or will be in compliance with CEQA prior to final design and construction. CEQA processes have been completed and adopted on all past construction and past and current operations of the facilities constructed pursuant to the 2001 RMP. The history of CEQA documentation is as follows:

a. Programmatic Environmental Impact Report for the Chino Basin Optimum Basin Management Program and Peace Agreement, certified by the IEUA in July 2000. SCH No. 2000041047[38].

b. Initial Study for the Implementation of Storm Water and Imported Water Recharge at 20 Recharge Basins in Chino Basin (implementing the 2001 RMP), This Initial Study tiers off of the OBMP PEIR and covers the construction and operation of all of the 2001 RMP projects that were selected for implementation.[39]

a. Supplemental Environmental Impact Report for IEUA Wastewater Projects and Peace II Projects, certified by IEUA in September 2010. SCH No. 2000041047[40]. This SEIR, in addition to covering IEUA wastewater projects, includes the nexus of the constructed 2001 RMP projects and future storm water and dry-weather runoff recharge projects to the salt and nutrient management plan for the Chino Basin, as included in the Basin Plan for the Santa Ana River Watershed (see Section 3.9.2 below).

b. The CEQA process for the 2013 RMPU is being conducted as described below for the proposed recharge projects listed in Table 2:

   i. CEQA process for the San Sevaine Basins project was completed and certified in January 2016.[41]

   ii. CEQA process for the Lower Day Creek Basin project is projected to be completed and certified in March 2016.

   iii. CEQA process for the remaining projects listed in Table 3 are projected to be completed and certified in November 2016.

3.9.2 B. Consistency with Water Quality Control Plans, Applicable Water Quality Control Policies, and Water Rights

The 2001 RMP projects were incorporated into the Santa Ana River Watershed Water Quality Control (Basin) Plan in Regional Board Resolution R8-2004-0001[42] as part of the salt and nutrient management plan for the Chino Basin. The Water Board subsequently included "completion" and "operation" of the storm water recharge projects into the recycling permits issued to the IEUA and Watermaster, which were issued in Water Board Resolutions R8-2005-0033, R8-2007-0039, and R8-2009-0057.[43] The TDS and nitrogen concentration limits in the

[38] This document is located here http://www.ieua.org/referenced-documents/.

[39] Ibid

[40] Ibid

[41] Ibid

[42] See Basin Plan, Chapter 5 – Maximum Benefit Implementation for Salt Management, Chino North and Cucamonga Management Zones, located here:
http://www.waterboards.ca.gov/santaana/water_issues/programs/basin_plan/index.shtml

[43] These permits require compliance with the maximum benefit demonstrations, including the construction and operation of the 2001 RMP facilities. These permits are located here:
http://www.waterboards.ca.gov/santaana/board_decisions/adopted_orders/orders/2005/05_033_wdr_ieua_cb

recycling permit are dependent on increasing storm water recharge pursuant to the OBMP and the 2001 RMP. The IEUA and Watermaster are fully compliant with the permit requirements.

Watermaster has acquired water rights to divert storm water for recharge in the Chino Basin. These permits, their priority dates, annual diversion limits, instantaneous diversion rates, and diversion periods are listed below and in Section 3.2.3. The IEUA has constructed and operated monitoring equipment that enables them to compute the amount of storm water and dry-weather runoff recharge and reports this information to Watermaster. Watermaster prepares an annual report and submits it each year to the SWRCB, describing the amount of storm water and dry-weather runoff that is diverted and recharged and the change in discharge and relative change in discharge for each tributary to the Santa Ana River due to these diversions. Watermaster is fully compliant with all of its water rights permit requirements.

Permit Number	Priority Date	Annual Diversion Limit (afy)	Instantaneous Diversion Rate (cfs)	Diversion Period
19895	6/10/1985	15,000	179	11/1 to 4/30
20753	4/9/1987	27,000	440	10/1 to 5/1
21225	11/4/2002	68,500	115,570	1/1 to 12/31
Total	--	110,500	116,189	--

3.9.3 C. Submission to Entities Overseeing Integrated Regional Water Management Plans and Other Local Plans

The IEUA is submitting this document and its appendix to the Santa Ana Watershed OWOW steering committee for their review and subsequent recommendation to the SAWPA commission that the Chino Basin SWRP be included in the OWOW 2.0 plan. The IEUA anticipates that the SAWPA Commission will approve the inclusion of the Chino Basin SWRP into the OWOW 2.0 in March 2016.

3.9.4 D. Consistency with Applicable Permits

The proposed 2013 RMPU is consistent with all existing diversion permits with exception that the diversion points for some of the proposed 2013 RMPU projects are not entirely consistent with the diversion points in the existing Watermaster permits for the diversion of storm water. Watermaster is currently preparing a change petition pursuant to Water Code Water Code § 1701 et. seq. for submittal to the SWRCB for their review and subsequent approval. The requested change is for point of diversion only.

w_04152005.pdf,
http://www.waterboards.ca.gov/santaana/board_decisions/adopted_orders/orders/2007/07_039_wdr_ieuacbw_cbrwgrp_06292007.pdf, and
http://www.waterboards.ca.gov/santaana/board_decisions/adopted_orders/orders/2009/09_057_amending_07-0039_ieua_cbw_phase1_2.pdf, respectively

All other permits required for implementation of the 2013 RMPU will be identified in the CEQA and design processes.

3.9.5 E. Consistency with California Health and Safety Code – Pest and Mosquito Abatement

Watermaster and the IEUA work with the Cities and the San Bernardino County Department of Health, Mosquito and Vector control staff to monitor and control midge flies and mosquitos. The IEUA has a vector control program for each recharge basin that it operates. In addition, the IEUA is continuously conducting research to develop cost-efficient and environmentally sound measures for the control of pests and vectors at recharge facilities.

3.9.6 F. Modification of a River or Stream Channel

The modifications proposed in the 2013 RMPU include some in in-channel diversion structures that will be constructed in existing concrete-lined channels. Improvements within existing storm water retention basins will include excavation, hauling to waste, compaction of embankments, and the construction of various hydraulic structures, including gates of various types and pump stations. All of these improvements will be constructed pursuant to existing law and regulations. Environmental impacts, if any, will be identified in the CEQA process and fully mitigated.

3.9.7 G. Monitoring

The following monitoring activities are included in the existing storm water and dry-weather runoff recharge projects constructed for the 2001 RMP and are proposed for the 2013 RMPU. The monitoring described below is a subset of the comprehensive monitoring program included in OBMP Program Element 1 – Develop and Implement Comprehensive Monitoring Program, which has been in place since 1998.

3.9.7.1 Surface water monitoring.

Stage within each basin is measured through a water pressure sensor connected to the IEUA's SCADA system and/or is measured manually at staff gauges at a frequency that enables the IEUA to determine the amount of water captured in a spreading basin during a storm and subsequently to estimate infiltration rates and the amount of water recharged. Watermaster reviews this information to complete its annual reporting to the Watermaster Board and to the SWRCB. Watermaster staff also reviews the raw data collected by the IEUA to compute the inflow and outflow hydrographs and verifies the recharge estimates developed by the IEUA. Watermaster and IEUA are initiating a process to comply with the new monitoring and reporting requirements adopted by the SWRCB in January 2016

The water quality of storm water and dry-weather runoff is measured at key points in the drainage system and in some of the basins as required in Water Recycling Requirements, Order

No. R8-2007-0039 for the *Chino Basin Recycled Water Groundwater Recharge Program, Phase I and Phase II Projects – Inland Empire Utilities Agency and Chino Basin Watermaster.*[44]

3.9.7.2 Groundwater Monitoring.

Watermaster monitors groundwater throughout the Chino Basin to assess changes in the basin that result from the implementation of the OBMP and to comply with the Water Board requirements in R8-2004-0001 and in coordination with the IEUA for compliance with the monitoring requirements specified in R8-2007-0039 for the Chino Basin Recycled Water Groundwater Recharge Program, Phase I and Phase II Projects - Inland Empire Utilities Agency and Chino Basin Watermaster Order R8-2007-0039.

This information is used to assess the ambient TDS and nitrate concentrations in the Chino Basin (pursuant to R8-2004-0001) that result in part from the recharge of storm water, dry-weather runoff, and recycled water. Ambient TDS and nitrate concentrations are computed by the Water Board for their triennial Basin Plan updates.

3.9.7.3 Data Management.

All of the surface and ground water data collected in the Chino Basin Watershed is subject to a rigorous QA/QC process and uploaded to a relational database that is owned and managed by Watermaster. See Section 3.7.6.

[44] See monitoring provisions for the permit, located here: http://www.waterboards.ca.gov/santaana/board_decisions/adopted_orders/orders/2007/07_039_wdr_ieuacbw_cbrwgrp_06292007.pdf

Black and Veatch and Wildermuth Environmental, 2001l. Recharge Master Plan Phase II Report, prepared for the Chino Basin Watermaster. http://www.ieua.org/referenced-documents/

Dodson and Associates, 2000. Programmatic Environmental Impact Report for the Chino Basin Optimum Basin Management Program and Peace Agreement, prepared for the Inland Empire Utilities Agency. . http://www.ieua.org/referenced-documents/

Dodson and Associates. Programmatic Environmental Impact Report for the Chino Basin Optimum Basin Management Program and Peace Agreement, prepared for the Inland Empire Utilities Agency, 2000. http://www.ieua.org/referenced-documents/

Dodson and Associates, 2010. Subsequent Environmental Impact Report for the Inland Empire Utilities Agency Peace II Project, prepared for the Inland Empire Utilities Agency. http://www.ieua.org/referenced-documents/

Santa Ana River Regional Water quality Control Plan, 2015. Santa Ana Regional Water Quality Control Board. http://www.waterboards.ca.gov/santaana/water_issues/programs/basin_plan/index.shtml

Wildermuth Environmental, 1999. Optimum Basin Management program, Phase 1 Report, prepared for the Chino Basin Watermaster. http://www.ieua.org/referenced-documents/

Wildermuth Environmental, Black and Veatch, Wagner and Bonsignore, 2010. 2010 Recharge Master Plan Update, prepared for the Inland Empire Utilities Agency and the Chino Basin Watermaster. http://www.ieua.org/referenced-documents/

Wildermuth Environmental, 2013. 2013 Amendment to the 2010 Recharge Master Plan Update, prepared for the Inland Empire Utilities Agency and the Chino Basin Watermaster. http://www.ieua.org/referenced-documents/

Wildermuth Environmental, 2015. Chino Basin Maximum Benefit Annual Report, prepared for the Chino Inland Empire Utilities Agency and Chino Basin Watermaster. http://www.cbwm.org/rep_engineering.htm

Wildermuth Environmental, 2015. 2014 State of the Basin Report, prepared for the Chino Basin Watermaster. http://www.cbwm.org/rep_engineering.htm

Wildermuth Environmental, 2015. 2013 Chino Basin Groundwater Model Update and Recalculation of Safe Yield Pursuant to the Peace Agreement, prepared for the Chino Basin Watermaster. http://www.ieua.org/referenced-documents/

Wildermuth Environmental, 2016. Annual Streamflow Monitoring Report for Water Rights Permit 21225, Fiscal 2014/15, prepared for the Chino Basin Watermaster. http://www.cbwm.org/rep_engineering.htm

Appendix A

Chino Basin SWRP Checklist and Self Certification Form

Appendix A: Checklist and Self-Certification

Checklist Instructions:

For <u>each element</u> listed below, review the applicable section in the Storm Water Resource Plan Guidelines and enter ALL of the following information.

A. **Mark the box if the Storm Water Resource Plan, or a functional equivalent Plan, meets the provision**
B. **In the provided space labeled <u>References</u>, enter:**

1. **Title of document(s) that contain the information;**
2. **The chapter/section, <u>and page number(s)</u> where the information is located within the document(s);**
3. **The entity(ies) that prepared the document(s);**
4. **The date the document(s) was prepared, and subsequent updates; and**
5. **Where each document can be accessed[1] (website address or attached).**

STORM WATER RESOURCE PLAN CHECKLIST AND SELF-CERTIFICATION		
Mandatory Required Elements per California Water Code are Shaded		
Y/N	**Plan Element**	**Water Code Section**

WATERSHED IDENTIFICATION (GUIDELINES SECTION VI.A)		
☑	Plan identifies watershed and subwatershed(s) for storm water resource planning.	10565(c) 10562(b)(1) 10565(c)
<u>References:</u> See Section 3.1.1		
☑	Plan is developed on a watershed basis, using boundaries as delineated by USGS, CalWater, USGS Hydrologic Unit designations, or an applicable integrated regional water management group, and includes a description and boundary map of each watershed and sub-watershed applicable to the Plan.	
<u>References:</u> See Section 3.1.2		

[1] All documents referenced must include a website address. If a document is not accessible to the public electronically, the document must be attached in the form of an electronic file (e.g. pdf or Word 2013) on a compact disk or other electronic transmittal tool.

WATERSHED IDENTIFICATION
(GUIDELINES SECTION VI.A)

☑	Plan includes an explanation of why the watershed(s) and sub-watershed(s) are appropriate for storm water management with a multiple-benefit watershed approach;

References:

See Section 3.1.1

☑	Plan describes the internal boundaries within the watershed (boundaries of municipalities; service areas of individual water, wastewater, and land use agencies, including those not involved in the Plan; groundwater basin boundaries, etc.; preferably provided in a geographic information system shape file);

References:

See Section 3.1.4

☑	Plan describes the water quality priorities within the watershed based on, at a minimum, applicable TMDLs and consideration of water body-pollutant combinations listed on the State's Clean Water Act Section 303(d) list of water quality limited segments (a.k.a impaired waters list);

References:

See Section 3.1.5

☑	Plan describes the general quality and identification of surface and ground water resources within the watershed (preferably provided in a geographic information system shape file);

References:

See Section 3.1.6

☑	Plan describes the local entity or entities that provide potable water supplies and the estimated volume of potable water provided by the water suppliers;

References:

See Section 3.1.7

☑	Plan includes map(s) showing location of native habitats, creeks, lakes, rivers, parks, and other natural or open space within the sub-watershed boundaries; and

References:

See Section 3.1.8

☑	Plan identifies (quantitative, if possible) the natural watershed processes that occur within the sub-watershed and a description of how those natural watershed processes have been disrupted within the sub-watershed (e.g., high levels of imperviousness convert the watershed processes of infiltration and interflow to surface runoff increasing runoff volumes; development commonly covers natural surfaces and often introduces non-native vegetation, preventing the natural supply of sediment from reaching receiving waters).

References:

See Section 3.1.9

WATER QUALITY COMPLIANCE
(GUIDELINES SECTION V)

☑	Plan identifies activities that generate or contribute to the pollution of storm water or dry weather runoff, or that impair the effective beneficial use of storm water or dry weather runoff.	10562(d)(7)

References:

See Section 3.2.1

☑	Plan describes how it is consistent with and assists in, compliance with total maximum daily load implementation plans and applicable national pollutant discharge elimination system permits.	10562(b)(5)

References:

See Section 3.2.2

☑	Plan identifies applicable permits and describes how it meets all applicable waste discharge permit requirements.	10562(b)(6)

References:

Section 3.2.3

ORGANIZATION, COORDINATION, COLLABORATION
(GUIDELINES SECTION VI.B)

☑	Local agencies and nongovernmental organizations were consulted in Plan development.	10565(a)

References:

See Section 3.3.1

☑	Community participation was provided for in Plan development.	10562(b)(4)

References:

See Section 3.3.1

☑	Plan includes description of the existing integrated regional water management group(s) implementing an integrated regional water management plan.

References:

See Section 3.3.3

ORGANIZATION, COORDINATION, COLLABORATION
(GUIDELINES SECTION VI.B)

☑	Plan includes identification of and coordination with agencies and organizations (including, but not limited to public agencies, nonprofit organizations, and privately owned water utilities) that need to participate and implement their own authorities and mandates in order to address the storm water and dry weather runoff management objectives of the Plan for the targeted watershed.

References:

See Section 3.3.1

☐	Plan includes identification of nonprofit organizations working on storm water and dry weather resource planning or management in the watershed.

References:

See Section 3.3.5

☑	Plan includes identification and discussion of public engagement efforts and community participation in Plan development.

References:

See Section 3.3.1

☑	Plan includes identification of required decisions that must be made by local, state or federal regulatory agencies for Plan implementation and coordinated watershed-based or regional monitoring and visualization

References:

See Section 3.3.7

☑	Plan describes planning and coordination of existing local governmental agencies, including where necessary new or altered governance structures to support collaboration among two or more lead local agencies responsible for plan implementation.

References:

See Section 3.3.8

☑	Plan describes the relationship of the Plan to other existing planning documents, ordinances, and programs established by local agencies.

References:

See Section 3.3.9

☐	(If applicable)Plan explans why individual agency participation in various isolated efforts is appropriate.

References:

See Section 3.3.10

QUANTITATIVE METHODS
(GUIDELINES SECTION VI.C)

☑	**For all analyses:** Plan includes an integrated metrics-based analysis to demonstrate that the Plan's proposed storm water and dry weather capture projects and programs will satisfy the Plan's identified water management objectives and multiple benefits.

References:

See Section 3.4.1

☑	**For water quality project analysis (section VI.C.2.a)** Plan includes an analysis of how each project and program complies with or is consistent with an applicable NPDES permit. The analysis should simulate the proposed watershed-based outcomes using modeling, calculations, pollutant mass balances, water volume balances, and/or other methods of analysis. Describes how each project or program will contribute to the preservation, restoration, or enhancement of watershed processes (as described in Guidelines section VI.C.2.a)

References:

See Section 3.4.2

☑	**For storm water capture and use project analysis (section VI.C.2.b):** Plan includes an analysis of how collectively the projects and programs in the watershed will capture and use the proposed amount of storm water and dry weather runoff.

References:

See Section 3.4.3

☑	**For water supply and flood management project analysis (section VI.C.2.c):** Plan includes an analysis of how each project and program will maximize and/or augment water supply.

References:

See Section 3.4.3

☑	**For environmental and community benefit analysis (section VI.C.2.d):** Plan includes a narrative of how each project and program will benefit the environment and/or community, with some type of quantitative measurement.

References:

See Section 3.4.2

☑	**Data management (section VI.C.3):** Plan describes data collection and management, including: a) mechanisms by which data will be managed and stored; b) how data will be accessed by stakeholders and the public; c) how existing water quality and water quality monitoring will be assessed; d) frequency at which data will be updated; and e) how data gaps will be identified.

References:

See Section 3.4.6

IDENTIFICATION AND PRIORITIZATION OF PROJECTS
(GUIDELINES SECTION VI.D)

☑	Plan identifies opportunities to augment local water supply through groundwater recharge or storage for beneficial use of storm water and dry weather runoff.	10562(d)(1)

References:

Section 3.4.3

☑	Plan identifies opportunities for source control for both pollution and dry weather runoff volume, onsite and local infiltration, and use of storm water and dry weather runoff.	10562(d)(2)

References:

Section 3.5.2

☑	Plan identifies projects that reestablish natural water drainage treatment and infiltration systems, or mimic natural system functions to the maximum extent feasible.	10562(d)(3)

References:

See Section 3.5.3

☑	Plan identifies opportunities to develop, restore, or enhance habitat and open space through storm water and dry weather runoff management, including wetlands, riverside habitats, parkways, and parks.	10562(d)(4)

References:

See Section 3.5.4

☑	Plan identifies opportunities to use existing publicly owned lands and easements, including, but not limited to, parks, public open space, community gardens, farm and agricultural preserves, school sites, and government office buildings and complexes, to capture, clean, store, and use storm water and dry weather runoff either onsite or offsite.	10562(d)(5), 10562(b)(8)

References:

See Section 3.5.5

IDENTIFICATION AND PRIORITIZATION OF PROJECTS
(GUIDELINES SECTION VI.D)

☑	For new development and redevelopments (if applicable): Plan identifies design criteria and best management practices to prevent storm water and dry weather runoff pollution and increase effective storm water and dry weather runoff management for new and upgraded infrastructure and residential, commercial, industrial, and public development.	10562(d)(6)

References:

See Section 3.6.1

☑	Plan uses appropriate quantitative methods for prioritization of projects. (This should be accomplished by using a metrics-based and integrated evaluation and analysis of multiple benefits to maximize water supply, water quality, flood management, environmental, and other community benefits within the watershed.)	10562(b)(2)

References:

See Section 3.6.2

☑	*Overall:* Plan prioritizes projects and programs using a metric-driven approach and a geospatial analysis of multiple benefits to maximize water supply, water quality, flood management, environmental, and community benefits within the watershed.

References:

See Section 3.4.1 and Section 3.6.2

☑	*Multiple benefits:* Each project in accordance with the Plan contributes to at least two or more **Main Benefits** and the maximum number of **Additional Benefits** as listed in Table 4 of the Guidelines. (Benefits are not counted twice if they apply to more than one category.)

References:

See Section 3.6.4

IMPLEMENTATION STRATEGY AND SCHEDULE
(GUIDELINES SECTION VI.E)

☑	Plan identifies resources for Plan implementation, including: 1) projection of additional funding needs and sources for administration and implementation needs; and 2) schedule for arranging and securing Plan implementation financing.	

References:

See Section 3.7.1

☑	Plan projects and programs are identified to ensure the effective implementation of the storm water resource plan pursuant to this part and achieve multiple benefits.	10562(d)(8)

References:

See Section 3.7.2

☑	The Plan identifies the development of appropriate decision support tools and the data necessary to use the decision support tools.	10562(d)(8)

References:

See Section 3.7.3

☑	Plan describes implementation strategy, including: a) Timeline for submitting Plan into existing plans, as applicable; b) Specific actions by which Plan will be implemented; c) All entities responsible for project implementation; d) Description of community participation strategy; e) Procedures to track status of each project; f) Timelines for all active or planned projects; g) Procedures for ongoing review, updates, and adaptive management of the Plan; and h) A strategy and timeline for obtaining necessary federal, state, and local permits.	

References:

See Section 3.7.4

☑	Applicable IRWM plan: The Plan will be submitted, upon development, to the applicable integrated regional water management (IRWM) group for incorporation into the IRWM plan.	10562(b)(7)

References:

See Section 3.7.5

IMPLEMENTATION STRATEGY AND SCHEDULE
(GUIDELINES SECTION VI.E)

☑	Plan describes how implementation performance measures will be tracked.

References:

See Section 3.7.6

EDUCATION, OUTREACH, PUBLIC PARTICIPATION
(GUIDELINES SECTION VI.F)

☑	Outreach and Scoping: 10562(b)(4) Community participation is provided for in Plan implementation.

References:

See Section 3.8.1

☑	Plan describes public education and public participation opportunities to engage the public when considering major technical and policy issues related to the development and implementation.

References:

See Section 3.8.1

☑	Plan describes mechanisms, processes, and milestones that have been or will be used to facilitate public participation and communication during development and implementation of the Plan.

References:

See Section 3.8.1

☑	Plan describes mechanisms to engage communities in project design and implementation.

References:

See Section 3.8.1

☑	Plan identifies specific audiences including local ratepayers, developers, locally regulated commercial and industrial stakeholders, nonprofit organizations, and the general public.

References:

See Section 3.8.1

EDUCATION, OUTREACH, PUBLIC PARTICIPATION
(GUIDELINES SECTION VI.F)

☑	Plan describes strategies to engage disadvantaged and climate vulnerable communities within the Plan boundaries and ongoing tracking of their involvement in the planning process.

References:

See Section 3.8.6

☐	Plan describes efforts to identify and address environmental injustice needs and issues within the watershed.

References:

See Section 3.8.7

☑	Plan includes a schedule for initial public engagement and education.

References:

See Section 3.8.1

DECLARATION AND SIGNATURE

I declare under penalty of perjury that all information provided is true and correct to the best of my knowledge and belief.

Signature	Title	Date
Signature	Title	Date

Table 1

OBMP Goals, Impediments, Action Items, Implications, and Implementation Elements

Impediments to the Goal	Action Items to Implement Goal	Implications	Program Elements to be Implemented in the OBMP
Goal 1 -- Enhance Basin Water Supplies			
1 Unless certain actions are taken the safe yield of the basin will be reduced.			
1a Basin yield is lost due to groundwater outflow from the southern part of basin.	Maintain or increase groundwater production in southern part of the basin; treat and serve contaminated groundwater from southern third of the basin.	This action will maintain and possibly increase safe yield; reducing production to levels below 1965-74 will result in a loss of safe yield. This action will result in improved water quality in the Santa Ana River.	3 Develop and implement a comprehensive water supply plan for existing and future impaired areas
	Locate new recharge facilities in the upper half of the basin.	Recharge in the upper half of the basin ensures that the water recharged can be recovered and put to beneficial use; recharge in the lower half of the basin may be lost to the Santa Ana River.	2 Develop and implement a comprehensive recharge program.
	Locate new recharge facilities in the lower half of the basin when recovery of recharged water can be ensured.	This action will result in localized water quality and supply improvements in the lower half of the basin.	2 Develop and implement a comprehensive recharge program.
	Develop and implement a comprehensive basin-wide ground level, groundwater level, quality, and production monitoring program.	This action will provide Watermaster with the information necessary to determine outflow to the river, actual production, and to design groundwater treatment facilities. This action is necessary to maintain yield.	1 Develop and implement a comprehensive basin-wide ground level, groundwater level, quality, and production monitoring program.
1b The basin is not using as much high quality stormwater as it could for recharge.	Develop and implement a comprehensive plan of stormwater recharge.	This action will result in a list of feasible recharge projects that when implemented will maintain/increase basin yield, improve surface water and groundwater quality, and reduce the cost of flood control projects.	2 Develop and implement a comprehensive recharge program.
	Develop a comprehensive stormwater flow and quality monitoring program in partnership with other agencies charged with flow and quality monitoring.	This action will provide data that can be used to quantify the increase in yield through stormwater recharge and will provide water quality benefits. This action will quantify offset credits for recycled water recharge.	2 Develop and implement a comprehensive recharge program.
	Develop new stormwater recharge projects at existing and future flood control facilities.	This action will maintain/increase yield and improve groundwater quality.	2 Develop and implement a comprehensive recharge program.

Source: 1997 OBMP Phase I Report
20160301 Table 1 aka OBMP Table 3-8_v2.xlsx -- Table 1 SWRP
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Table 1

OBMP Goals, Impediments, Action Items, Implications, and Implementation Elements

Impediments to the Goal	Action Items to Implement Goal	Implications	Program Elements to be Implemented in the OBMP
	Maximize recharge capacity at existing recharge facilities through improved maintenance.	This action will maintain/increase yield and improve groundwater quality.	2 Develop and implement a comprehensive recharge program.
1c The current manner Watermaster manages cyclic and local storage accounts will cause overdraft.	Develop methods to account for losses from cyclic and local storage accounts; and set limits on storage.	This action will help maintain the safe yield and ensure that basin water is put to maximum beneficial use.	8 Develop and implement a storage management program.
2 Unless certain actions are taken, groundwater levels in Management Zone (MZ) 1 will continue to decline adding to the potential for additional subsidence and fissures, lost production capability, and water quality problems.	Develop comprehensive ground level, groundwater level and quality monitoring program in MZ 1.	This action will provide engineering and scientific information that can be used to accurately assess groundwater conditions and manage MZ 1.	4 Develop comprehensive ground level, groundwater level and quality monitoring program in MZ 1.
	Develop groundwater management program for MZ 1consisting of:	This action will result in a plan that will reduce potential future subsidence and occurrence of ground fissures, maintain minimum levels of production, and improve water quality.	4 Develop and implement a groundwater management program for MZ 1.
	Increase recharge of stormwater and supplemental water in MZ 1.	This action will help maintain or increase groundwater levels and reduce the potential for subsidence and ground fissures.	
	Manage groundwater production in MZ 1 to a sustainable level to minimize subsidence.	This action will help maintain or increase groundwater levels and reduce the potential for subsidence and ground fissures.	
	Increase direct use of supplemental water in MZ 1(including in lieu deliveries).	This action will help maintain or increase groundwater levels and reduce the potential for subsidence and ground fissures.	
3 Because there is limited assimilative capacity for total dissolved solids (TDS) and nitrogen in the basin, there are economic limitations on the recharge of recycled water.	Create new assimilative capacity through the development of offset programs and through other mitigation programs.	This action will result in increased use of reclaimed water and will decrease the dependence on expensive and less reliable imported sources.	5 Develop and Implement Regional Supplemental Water Master Plan
4 Because future demands are increasing and there are limitations on basin and traditional supplemental supplies, new sources of supplemental water need to be developed.	Maximize the direct use of recycled water.	This action will reduce the dependence on expensive and less reliable imported sources.	5 Develop and Implement Regional Supplemental Water Master Plan
	Develop new sources of supplemental water from the Bunker Hill Basin, the Santa Ana River and other outside basin sources.	This action will ensure that there will be adequate supplies of high quality water to meet future demands.	5 Develop and Implement Regional Supplemental Water Master Plan

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Table 1
OBMP Goals, Impediments, Action Items, Implications, and Implementation Elements

Impediments to the Goal	Action Items to Implement Goal	Implications	Program Elements to be Implemented in the OBMP
Goal 2 -- Protect and Enhance Water Quality			
1 Watermaster lacks comprehensive, long term information on groundwater quality.	Develop and implement a comprehensive groundwater quality monitoring program.	This action will provide a comprehensive assessment of current and future water quality problems and solutions in the basin. This action will contribute to the the least-cost and most expedient plans to protect, enhance and use groundwater to the maximum extent possible.	1 Develop and implement a comprehensive basin-wide ground level, groundwater level, quality, and production monitoring program.
2 Watermaster does not have sufficient information to determine whether point and non-point sources are being adequately addressed in the basin.			
2a RWQCB may not have adequate resources to address all the water quality problems within its jurisdiction in the Chino Basin.	Coordinate with regulatory agencies to share monitoring and other information to detect and define water quality problems.	This action will result in more efficient use of Watermaster, producer and regulatory agency resources.	6 Develop a cooperative program with the regulatory agencies where Watermaster and producer resources can be used to improve regulatory agency effectiveness.
	Take coordinated action regarding Watermaster priorities of mutual interest.	This action will improve timeliness and success in preventing water quality degradation and in cleaning up existing degradation; may include Watermaster entering litigation to assist in clean up.	6 Develop cooperative programs where Watermaster and producer resources can be used to improve basin management.
	Participate in projects of mutual interest including the RWQCB Watershed management efforts in the Chino Basin	This action will result in more efficient use of resources of Watermaster, producers, and dischargers.	6 Develop and implement programs to address problems as identified and determined . beneficial
2b A comprehensive approach to addressing point and non-point source problems does not exist.	Develop and implement programs to address problems posed by specific contaminants such as TDS, nitrate, methyl ter -butyl ether, perchlorate and others.	This action will improve timeliness and success in preventing water quality degradation and in cleaning up existing degradation.	6 Develop and implement programs to address problems posed by specific contaminants.
2c There is ongoing salt and nitrogen loading from dairies. Source water quality available to the dairies is often too degraded to be discharged.	Export manure.	This action will reduce TDS and nitrogen degradation of surface water and groundwater at less cost than treatment of receiving waters.	7 Develop and implement programs that result in maximum animal waste export
	Treat dairy sewage and eliminate discharge to groundwater, or export dairy sewage.	This action will reduce TDS and nitrogen degradation of surface water and groundwater at less cost than treatment of receiving waters.	7 Develop and implement programs that result in maximum animal waste export

Table 1

OBMP Goals, Impediments, Action Items, Implications, and Implementation Elements

Impediments to the Goal	Action Items to Implement Goal	Implications	Program Elements to be Implemented in the OBMP
3 There is ongoing and legacy contamination in vadose zone with TDS and nitrogen from historic dairy and other irrigated agricultural practices.	Develop regional and local groundwater treatment systems to treat groundwater for direct beneficial use.	This action will improve groundwater quality, maintain/increase safe yield, and maximize beneficial use of basin water.	3 Develop and implement a comprehensive water supply plan for existing and future impaired areas
4 Poor ambient groundwater quality limits direct use of groundwater and can lead to loss of basin yield.	Develop programs (regional treatment, incentives, etc.) to pump and treat degraded groundwater and to put the treated water to direct use.	This action will speed up the cleanup of degraded water, stop the spreading of degradation and maintain/increase safe yield.	3 Develop and implement a comprehensive water supply plan for existing and future impaired areas
5 The basin is not using as much high quality stormwater as it could for recharge.	Develop and implement a comprehensive plan of recharge for stormwater.	This action will result in a list of feasible recharge projects that when implemented will maintain/increase basin yield, improve surface water and groundwater quality, and reduce the cost of flood control projects.	2 Develop and implement a comprehensive recharge program.
	Develop a comprehensive stormwater flow and quality monitoring program in partnership with other agencies charged with flow and quality monitoring.	This action will provide data that can be used to quantify the increase in yield through stormwater recharge and will provide water quality benefits. This action will quantify offset credits for recycled water recharge.	1 Develop a comprehensive stormwater flow and quality monitoring program in partnership with other agencies charged with flow and quality monitoring.
	Develop new stormwater recharge projects at existing and future flood control facilities.	This action will maintain/increase yield and improve groundwater quality.	2 Develop and implement a comprehensive recharge program.
	Maximize recharge capacity at existing recharge facilities through improved maintenance.	This action will maintain/increase yield and improve groundwater quality.	2 Develop and implement a comprehensive recharge program.
6 The basin is hydrologically closed.			
6a The southern part of the basin will accumulate TDS and nitrogen if yield is maintained or increased.	Periodically assess the salt balance of the basin.	This action will provide one of a group of metrics from which the success of the water quality component of the OBMP will be assessed. A declining salt balance will indicate an improvement in water quality.	1 Develop and implement a comprehensive basin-wide ground level, groundwater level, quality, and production monitoring program. 6 Develop new tools to compute salt balance
6b There is a lack of cost-effective groundwater salt export facilities.	Develop new TDS export facilities and/or find means of using Non Reclaimable Waste Line and the Santa Ana Regional Interceptor with less cost.	This action will result in TDS and and nitrogen removal, improvement in groundwater quality, will maintain/increase basin yield, and improve Santa Ana River quality.	3 Develop and implement a comprehensive water supply plan for existing and future impaired areas

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Impediments to the Goal	Action Items to Implement Goal	Implications	Program Elements to be Implemented in the OBMP
	Establish financial incentives to ensure that existing groundwater is pumped and that high quality water is used to replenish the basin.	This action will result in more TDS and and nitrogen removal, improvement in groundwater quality, will maintain/increase basin yield, and improve Santa Ana River quality.	3 Develop and implement a comprehensive water supply plan for existing and future impaired areas
6c Existing production patterns in the basin cause salt and nitrate to accumulate in the southern end of the basin.	Increase recharge without an increase in production to cause an increase in rising water	This action will result in a gradual improvement in groundwater quality in the southern part of the basin and an increase in TDS and nitrogen degradation in the Santa Ana River.	3 Develop and implement a comprehensive water supply plan for existing and future impaired areas
7 Pesticide and chemical use, and petroleum product disposal habits	Public education.	Members of the public will be encouraged to become individually involved in protecting both surface and groundwater quality	6 Develop and implement programs to address problems posed by specific contaminants.
Goal 3 -- Enhance Management of the Basin			
1 The way Watermaster manages cyclic and local storage accounts will cause overdraft.	Develop methods to account for losses from cyclic and local storage accounts; set limits on storage.	This action will help maintain the safe yield and ensure that basin water is put to maximum beneficial use.	8 Develop and implement a storage management program.
2 Existing production patterns are not balanced, cause losses, can cause local subsidence, and water quality problems.	Develop and implement a comprehensive basin-wide ground level, groundwater level, quality, and production monitoring program.	This action will provide information that can be used to understand the groundwater flow system and quality conditions.	1 Develop and implement a comprehensive basin-wide ground level, groundwater level, quality, and production monitoring program.
	Develop new production patterns that maximize yield and beneficial use; and develop incentive programs and policies that encourage (or rules that enforce) new production patterns.	This action will maximize yield and beneficial use of basin water; improve basin water quality, and improve Santa Ana River quality.	3 Develop and implement a comprehensive water supply plan for existing and future impaired areas
	Develop programs (regional treatment, incentives, etc.) to pump and treat degraded groundwater and to put the treated water to direct use.	This action will maximize yield and beneficial use of basin water; improve basin water quality, and improve Santa Ana River quality.	3 Develop and implement a comprehensive water supply plan for existing and future impaired areas
3 About 500,000 to 1,000,000 acre-ft of storage in the Chino Basin cannot be used due to water quality and institutional issues.	Develop conjunctive use programs that take into account water quantity and quality	This action will result in lower water supply costs to basin producers.	9 Develop conjunctive use programs that take into account water quantity and quality
4 Poor ambient groundwater quality limits direct use of groundwater and can lead to loss of basin yield.	Develop programs (regional treatment, incentives, etc.) to pump and treat degraded groundwater and to put the treated water to direct use.	This action will speed up the cleanup of degraded water, stop the spreading of degradation and maintain/increase safe yield.	3 Develop and implement a comprehensive water supply plan for existing and future impaired areas

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Impediments to the Goal	Action Items to Implement Goal	Implications	Program Elements to be Implemented in the OBMP
Goal 4 -- Equitably Finance the OBMP			
1 The equitable distribution of cost associated with the OBMP is not defined.	Identify an equitable approach to spread the cost of OBMP implementation either on a per acre-ft basis or some other equitable means.	This action will improve the likelihood that the OBMP will be implemented.	Develop and implement a financial plan to implement the OBMP
	Identify ways to recover value from utilizing basin assets including storage and rising water leaving the basin.	This action will lower the cost of the OBMP to producers and improve the likelihood that OBMP will be implemented.	Develop and implement a financial plan to implement the OBMP
2 Limited resources restrict potential water resources improvements of the OBMP.	Evaluate project and management components and rank components with equal consideration given to water quantity, water quality and cost.	This action will result in the optimum set of project and management components of the OBMP being implemented.	

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Table 2
2013 Recharge Master Plan Update
Yield Enhancement Projects

Project ID	Project	New Storm Water Recharge (acre-ft/yr)	New Recycled Water Recharge Capacity (acre-ft/yr)	Direct Construction Cost	Engineering and Admin Costs	Total Capital Cost
Recommended MZ3 Projects[1]						
18a	CSI Storm Water Basin	81	0	$ 291,000	$ 150,000	$ 440,000
	2013 Proposed RP3 Improvements[2]			$ 3,232,000	$ 481,000	$ 3,710,000
23a	2013 RMPU Proposed Wineville PS to Jurupa, Expanded Jurupa PS to RP3 Basin[2]	3,166	2,905	$ 15,957,000	$ 1,640,000	$ 17,600,000
27	Declez Basin	241	0	$ 3,696,000	$ 370,000	$ 4,070,000
Total MZ3		**3,489**	**2,905**	**$ 23,176,000**	**$ 2,641,000**	**$ 25,820,000**
Recommended MZ2 Projects[3]						
11	Victoria Basin[4]	43	120	$ 130,000	$ 19,500	$ 150,000
7	San Sevaine Basins[5]	642	4,100	$ 5,913,000	$ 550,000	$ 6,460,000
12	Lower Day Basin (2010 RMPU)	789	0	$ 2,158,000	$ 324,000	$ 2,480,000
14	Turner Basin	66	0	$ 739,200	$ 148,000	$ 890,000
15a	Ely Basin	221	0	$ 2,370,000	$ 829,000	$ 3,200,000
Total MZ2		**1,760**	**4,220**	**$ 11,310,200**	**$ 1,870,500**	**$ 13,180,000**
Recommended MZ1 Projects						
2	Montclair Basins	248	0	$ 1,251,900	$ 188,000	$ 1,440,000
Total MZ1		**248**	**0**	**$ 1,251,900**	**$ 188,000**	**$ 1,440,000**
Total Recommended Projects		**5,497**	**7,125**	**$ 35,738,100**	**$ 4,699,500**	**$ 40,440,000**

1. PID 25a (Sierra Basin) was deleted from the recommended project list.
2. PID23a (2013 RMPU Proposed Wineville PS to Jurupa, Expanded Jurupa PS to RP3 Basin, and 2013 Proposed RP3 Improvements) was updated to specify the parts of the project shared between IEUA and CBWM. Total Capital Cost of PID 23a is about $21,300,000.
3. PID 12 (Lower San Sevaine Basin) was deleted from recommended project list.
4. PID 11's total capital cost is about $150,000.
5. PID 7 (San Sevaine Basins) project cost was updated based on the recently completed preliminary design report. Total capital cost for this project is about $6,460,000.

Table 3
Recommended 2013 Recharge Master Plan Update Facilities and Implementation Status

Project ID	Recharge Projects	Property Owner	Key Project Improvements	Review Draft Preliminary Design	Finalize Preliminary Design	Review CEQA Documents	Adopt CEQA Document	Finalize Design	Contract Bidding	Contract Award	Finalize Contract
7	San Sevaine	SBCFCD	Construct pump station, pump from SS5 to SS1, SS2 and SS3	Completed	Completed	Completed	1/20/2016	3/18/2016	3/21/2016	5/18/2016	7/5/2017
12	Lower Day	SBCFCD	Construct new inlet, harden embankments and install gate on mid-level outlet.	Completed	Completed	Completed	3/16/2016	10/5/2016	10/6/2016	12/21/2016	1/5/2018
18a	CSI Storm Water Basin	California Steel Industries	New storage and recharge facility by deepening/removing 36,000 CY from existing retention basin	6/16/2016	8/17/2016	8/17/2016	11/16/2016	12/29/2017	Pending	Pending	12/31/2019
23a	Wineville, Jurupa, and RP3	SBCFCD	Create conservation storage in Wineville Basin and constructing pump stations to pump storm water and dry-weather runoff to adjacent conservation basins	6/16/2016	8/17/2016	8/17/2016	11/16/2016	12/29/2017	Pending	Pending	12/31/2019
27	Declez Basin	SBCFCD	Increasing conservation storage by raising berms and hardening embankments	6/16/2016	8/17/2016	8/17/2016	11/16/2016	12/29/2017	Pending	Pending	12/31/2019
11	Victoria Basin	SBCFCD	Improve the infiltration rate and by removing impermeable materials and abandoning mid-level outlet	6/16/2016	8/17/2016	8/17/2016	11/16/2016	12/29/2017	Pending	Pending	12/31/2019
14	Turner Basin	SBCFCD	Increase conservation storage and recharge by raising the spillway height	6/16/2016	8/17/2016	8/17/2016	11/16/2016	12/29/2017	Pending	Pending	12/31/2019
15a	Ely Basin	SBCFCD and CBWCD	Improve storage and recharge by expanding conservation storage (removing 470,000 CY)	6/16/2016	8/17/2016	8/17/2016	11/16/2016	12/29/2017	Pending	Pending	12/31/2019
2	Montclair Basins	CBWCD	Construction of new inlets expanding diversion capacity	6/16/2016	8/17/2016	8/17/2016	11/16/2016	12/29/2017	Pending	Pending	12/31/2019

Table 4
303 (d) List of Impaired Water Bodies and 2013 Recharge Master Plan Benefits

Water Body	Reach	Pollutant	Potential Sources	2013 RMPU Project Benefit on Impaired Water Bodies	
				Project	Benefit
San Antonio Creek	Confluence with Chino Creek to San Gabriel Mountains ridgeline	pH	Unknown	Montclair Basin Improvements	Reduced storm water discharge and eliminates dry-weather runoff from areas upstream of improvements
Chino Creek Reach 2	Start of channel lining to confluence with San Antonio Creek	Coliform bacteria pH	Unknown Unknown	Montclair Basin Improvements	Reduced storm water discharge and eliminates dry-weather runoff from areas upstream of improvements
Chino Creek Reach 1B	Mill Creek confluence to start of concrete channel	COD Nutrients Pathogens	Unknown Agriculture Agriculture, dairies, urban runoff and storm water		
Chino Creek 1A	Confluence with Santa Ana to confluence with Mill Creek	Nutrients Pathogens	Agriculture, dairies Agriculture, dairies, urban runoff and storm water		
Cucamonga Creek Reach 2	Debris Basin to San Gabriel Mountains ridgeline	pH	Unknown		
Cucamonga Creek Reach 1	Confluence with Mill Creek to debris dam	Cadmium Coliform-bacteria Copper Lead Zinc	Unknown Unknown Unknown Unknown Unknown	Ely and Turner Basin Improvements	Reduced storm water discharge and eliminates dry-weather runoff from areas upstream of improvements
Mill Creek	Confluence with Chino Creek to confluence with Cucamonga Creek	Nutrients Pathogens TSS	Agriculture, dairies Dairies Dairies		

Chino Basin DWR Bulletin 118 Boundary

Major SAWPA Member Agencies

Santa Ana River Watershed

San Bernardino Valley MWD

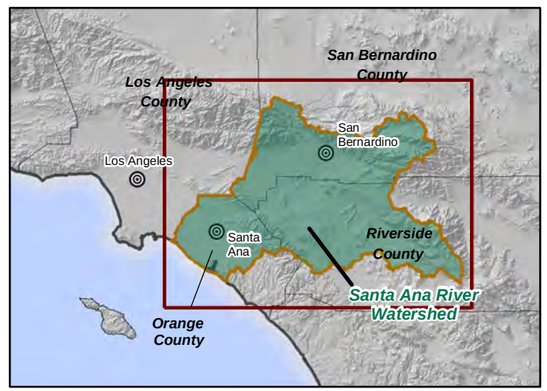
Inland Empire Utilities Agency

Santa Ana River

Western MWD

Eastern MWD

Orange County Water District



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Date: 3/2/2016

Name: Figure1_SAR_Watershed

0 10 20 Miles

0 10 20 30 Kilometers

Inland Empire Utilities Agency
A MUNICIPAL WATER DISTRICT

Location of the Chino Basin and the Santa Ana River Watershed

117°40'0"W

117°20'0"W

34°0'0"N

San Antonio Creek

Day Creek

San Sevaine Creek

Deodez Channel

Cucamonga Creek

Chino Creek

Santa Ana River

210

15

10

60

71

Chino Basin DWR Bulletin 118 Boundary

Hydrologic Subareas (HSAs) used in Watershed Modeling

Inland Empire Utilities Agency Service Area Boundary

Flood Control/Conservation Basins

Time Periods in Which Channel Segments Were Lined

- 1950 - 1959
- 1960 - 1969
- 1970 - 1979
- 1980 - 1989
- 1990 - 1999

Geology

Water-Bearing Sediments

- Quaternary Alluvium

Consolidated Bedrock

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

0 1 2 3 4 5 Miles

0 2 4 6 8 Kilometers

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Name: Figure2_Channel_Lining

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Time History of Channel Lining in the Chino Basin

Figure 3 Streambed Infiltration for the Santa Ana River Tributaries that Traverse the Chino Basin

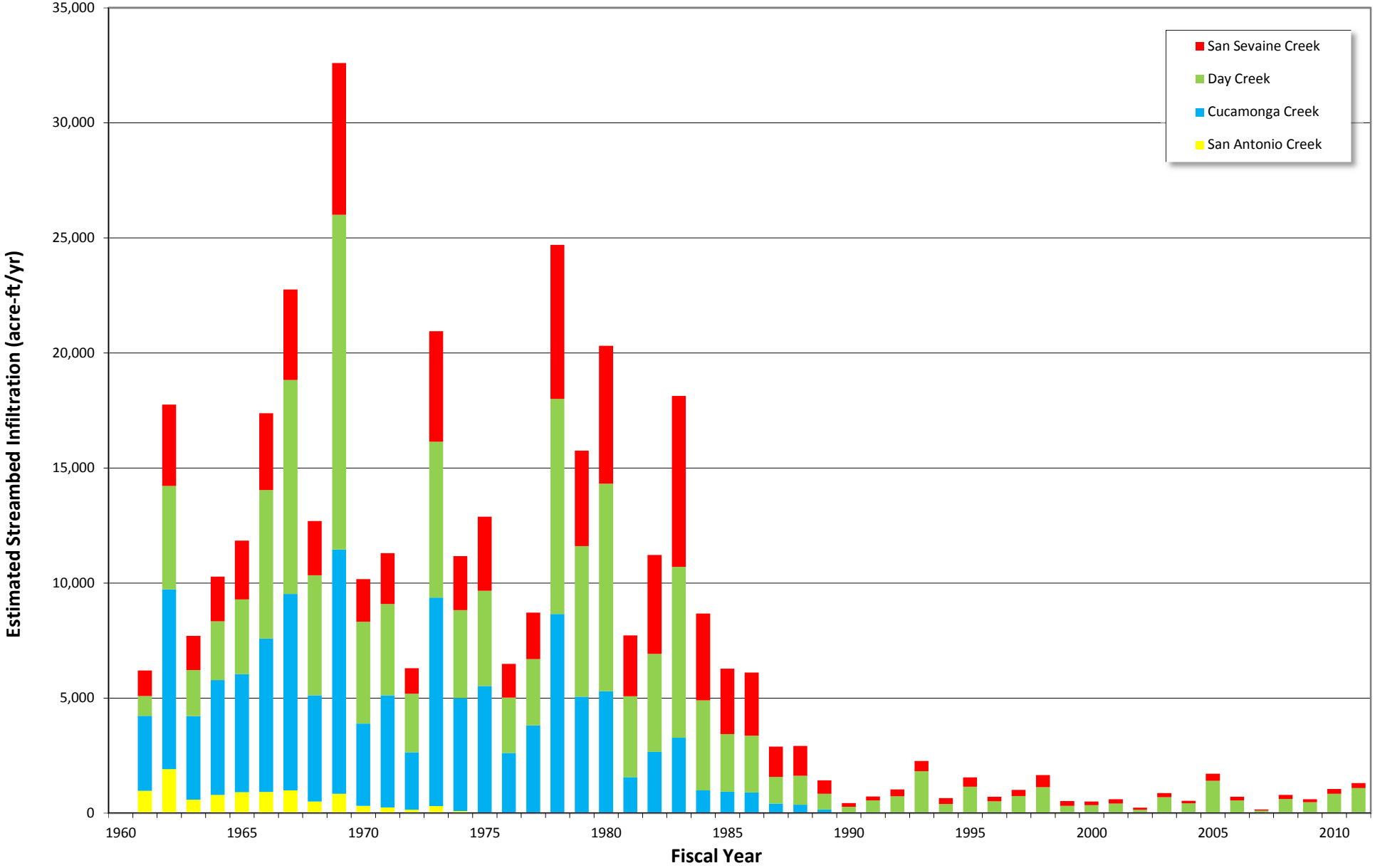
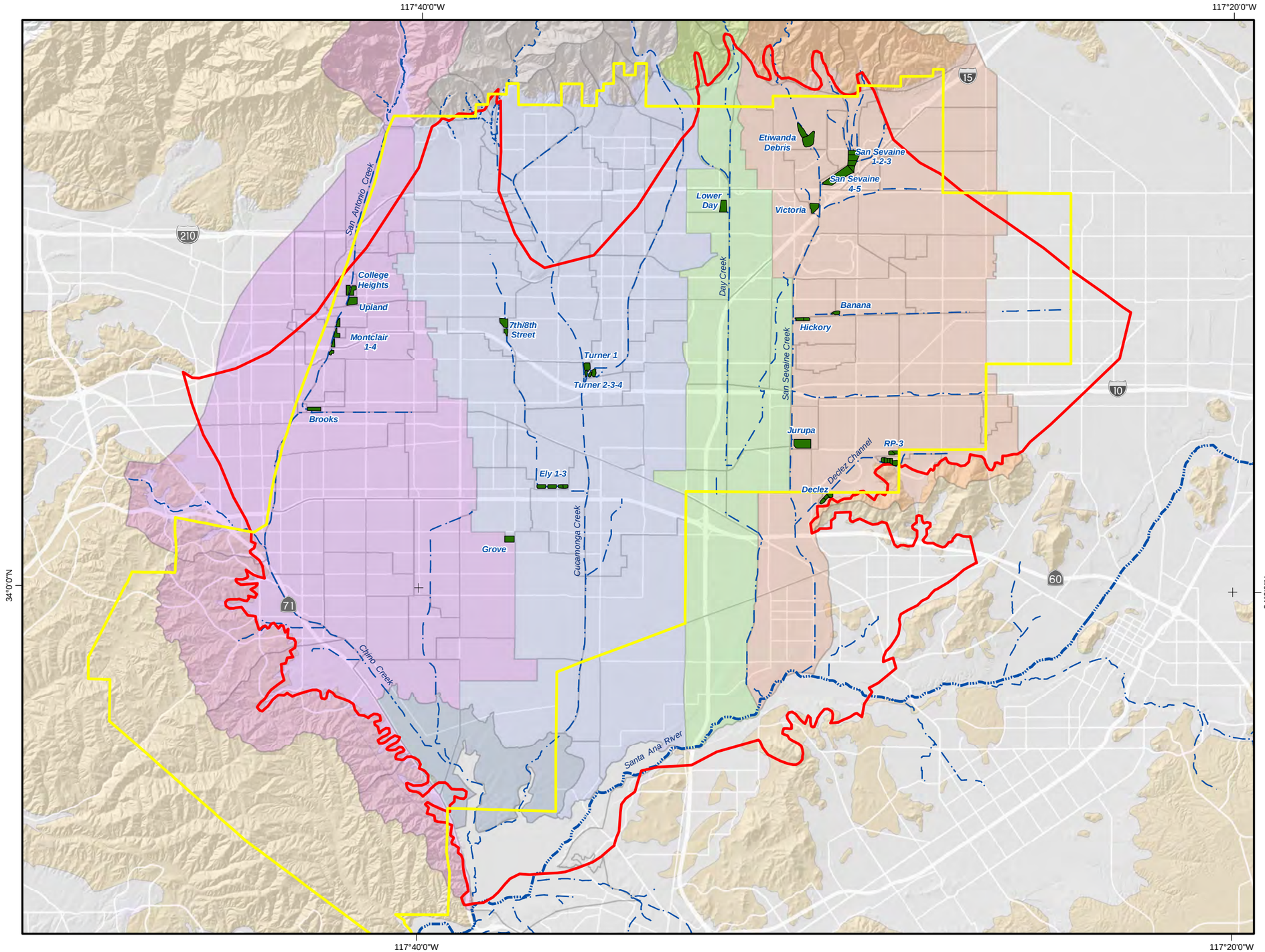


Figure3_SW_Recharge.xlsx
Revised 3/2/2016



Chino Basin DWR Bulletin 118 Boundary

Hydrologic Subareas (HSAs) used in Watershed Modeling

Inland Empire Utilities Agency Service Area Boundary

Watersheds in Creek Systems in Chino Basin Tributary to Santa Ana River

- Chino/San Antonio Creek
- Cucamonga/Deer Creek
- Day Creek
- Etiwanda/San Sevaine Creek
- Prado Basin Headlands

Recharge Facilities in the Chino Basin

Projects Implemented as Part of OBMP and 2001 Recharge Master Plan

Geology

Water-Bearing Sediments

Quaternary Alluvium

Consolidated Bedrock

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

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Date: 3/2/2016

Name: Figure4_CBFIP_recharge

0 1 2 3 4 5 Miles

0 2 4 6 8 Kilometers

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Recharge Improvements in the Chino Basin Since Implementation of the OBMP and the 2001 Recharge Master Plan

Figure 5
Increase in Storm Water and Dry-Weather Runoff Recharge Due to Recharge Improvements in the Chino Basin Since Implementation of the OBMP and the 2001 Recharge Master Plan

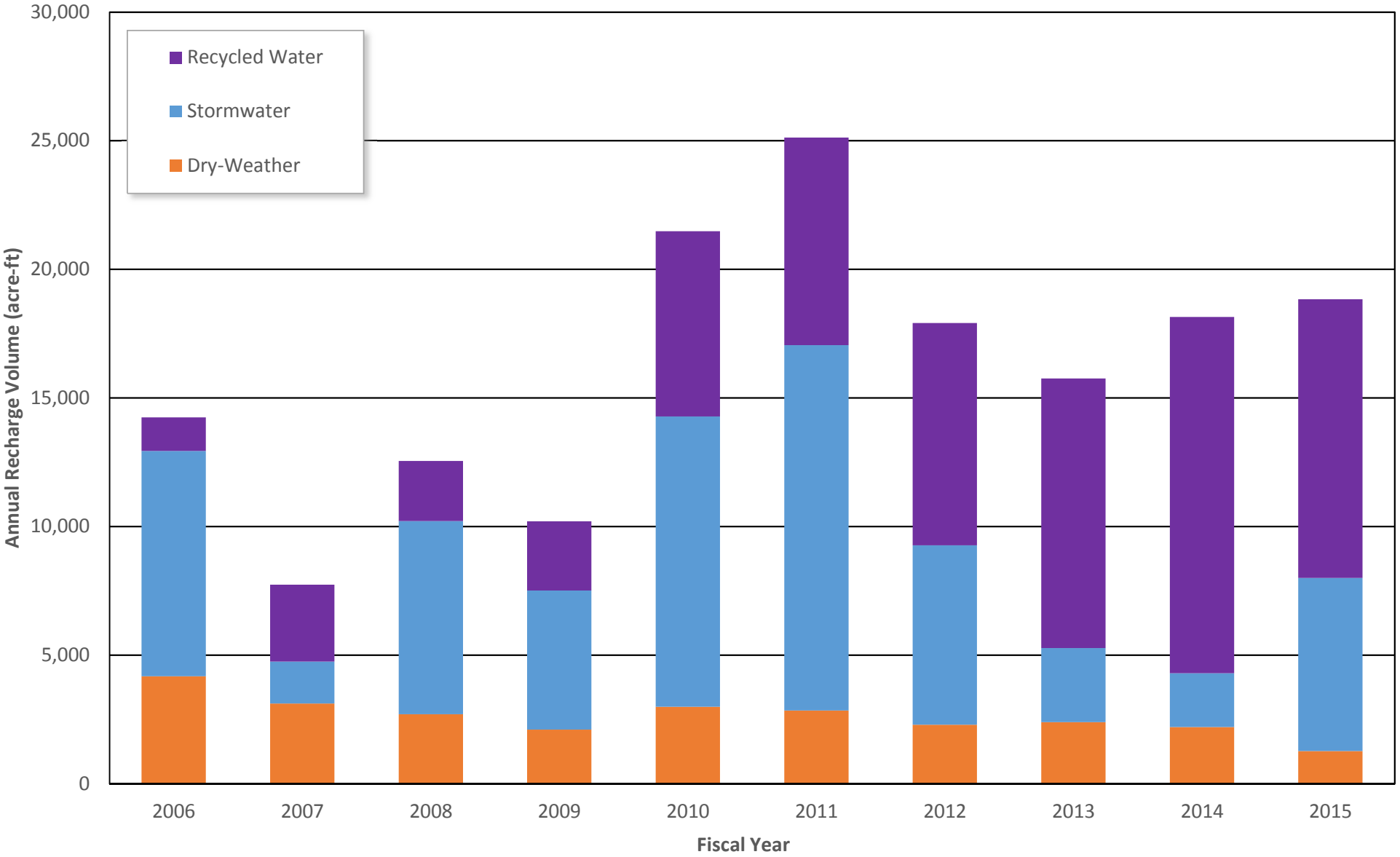
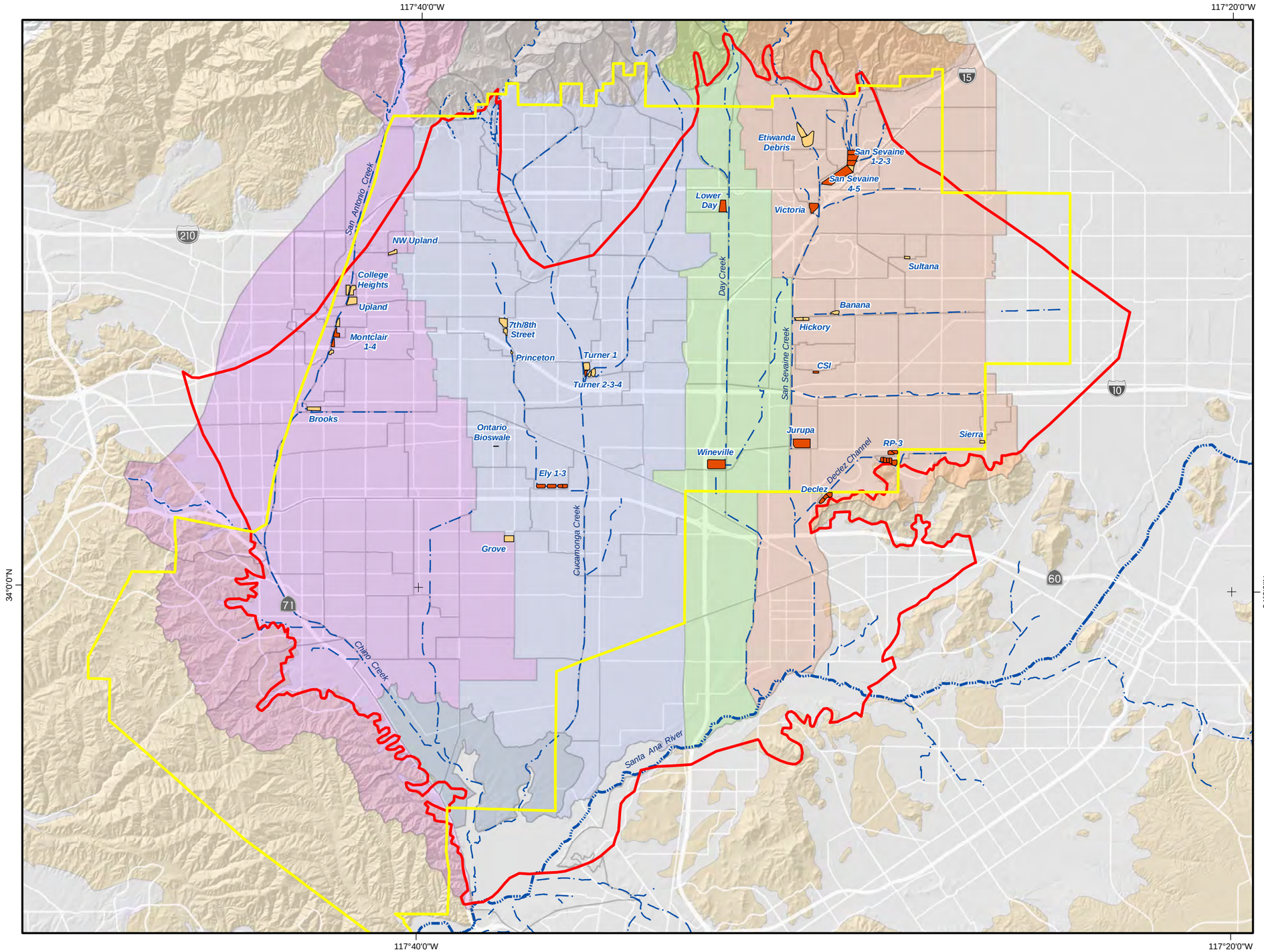


Figure5_Recharge.xlsx
Printed on: 3/2/2016



Chino Basin DWR Bulletin 118 Boundary

Hydrologic Subareas (HSAs) used in Watershed Modeling

Inland Empire Utilities Agency Service Area Boundary

Watersheds in Creek Systems in Chino Basin Tributary to Santa Ana River

Chino/San Antonio Creek

Cucamonga/Deer Creek

Day Creek

Etiwanda/San Sevaine Creek

Prado Basin Headlands

Recharge Facilities in the Chino Basin

Projects in 2013 Amendment to the 2010 Recharge Master Plan Update (2013 RMPU)

Projects considered in 2013 RMPU and deferred to future RMPU

Geology

Water-Bearing Sediments

Quaternary Alluvium

Consolidated Bedrock

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

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Date: 3/2/2016

Name: Figure6_RMPU_recharge

0 1 2 3 4 5 Miles

0 2 4 6 8 Kilometers

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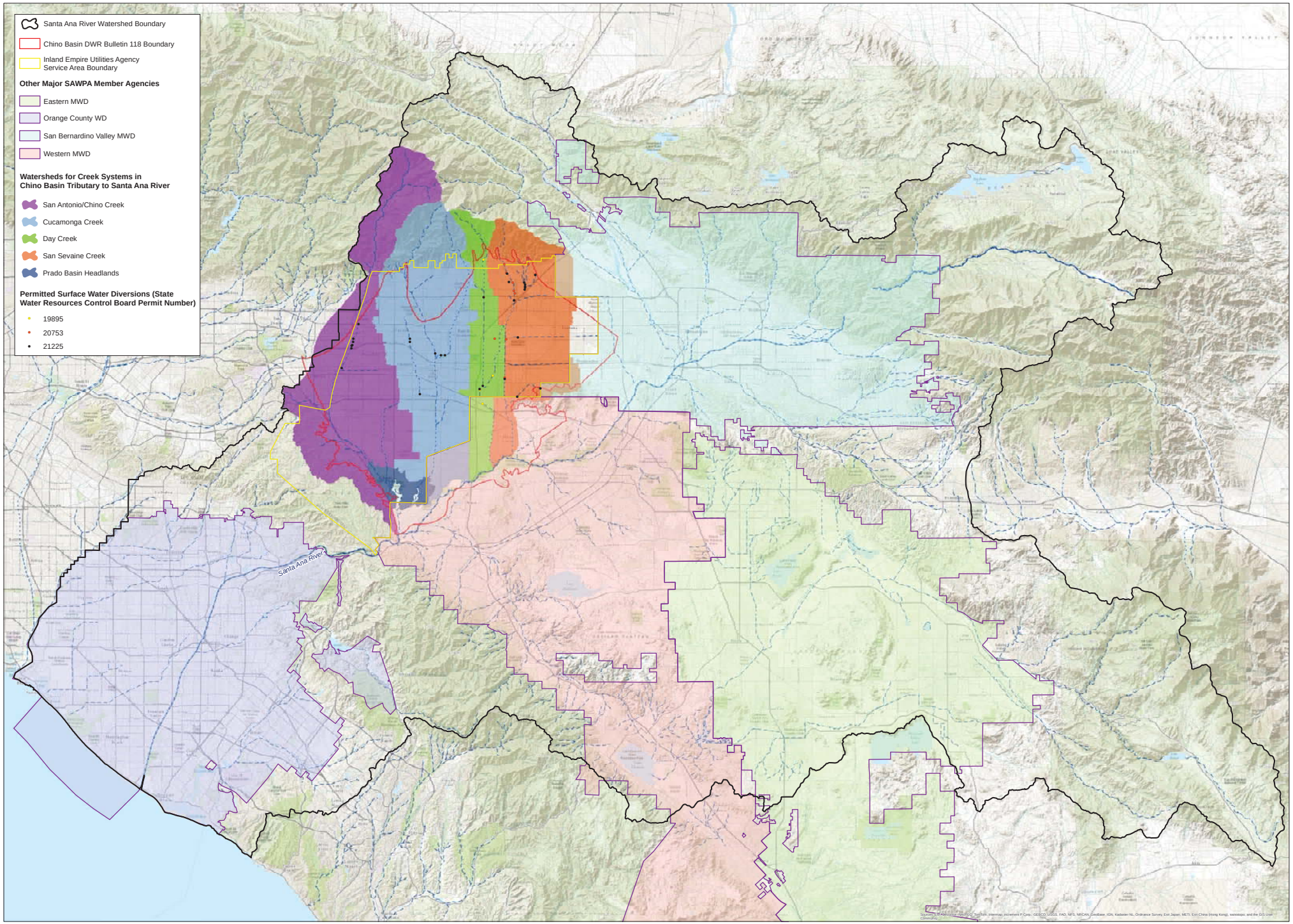
2013 RMPU Storm Water and Dry-Weather Runoff Recharge Projects



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Date: 20160112
SAR_Watershed_fig1.mxd

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0 10 20 Miles
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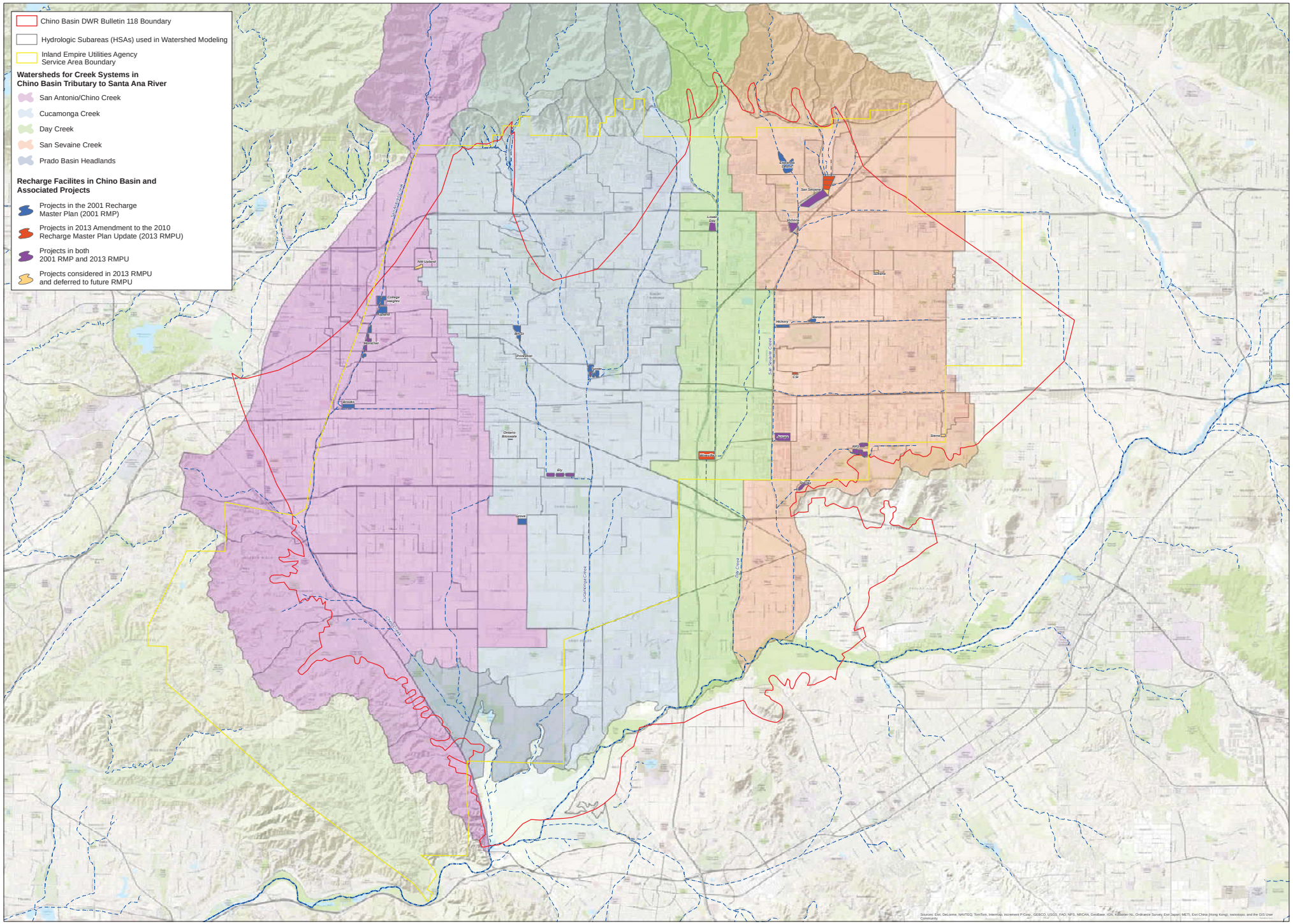
Inland Empire Utilities Agency

Chino Basin Subwatersheds and Surface Water Diversions within the Santa Ana Watershed

Plate 1



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Chino_Recharge_Facilities.mxd

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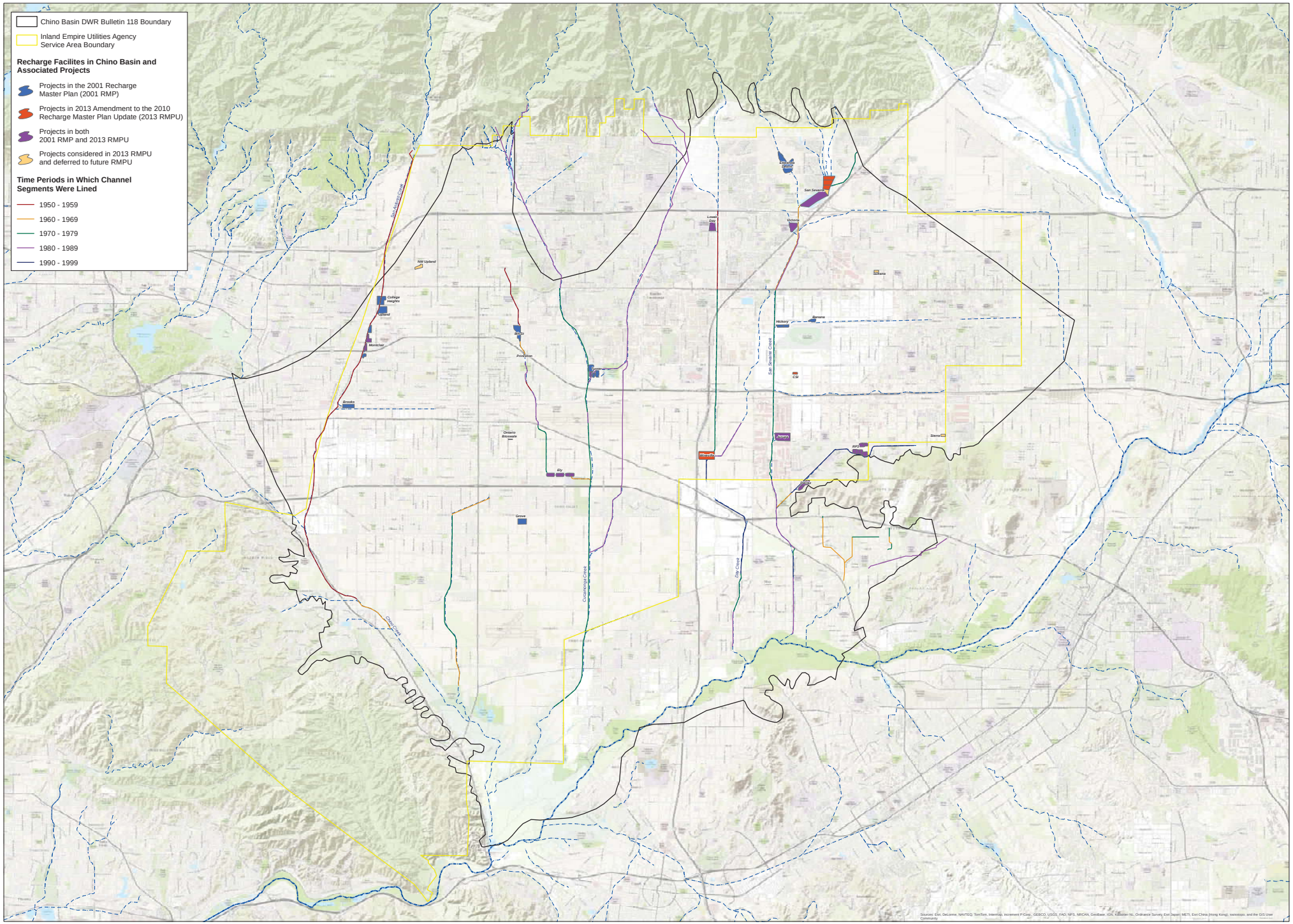
0 5 Miles

0 5 10 Kilometers

Inland Empire Utilities Agency

Recharge Improvements in the Chino Basin Since Implementation of the OBMP and the 2001 Recharge Master Plan

Plate 2



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Author: GAR
Date: 20160112
Chino_Channels.mxd

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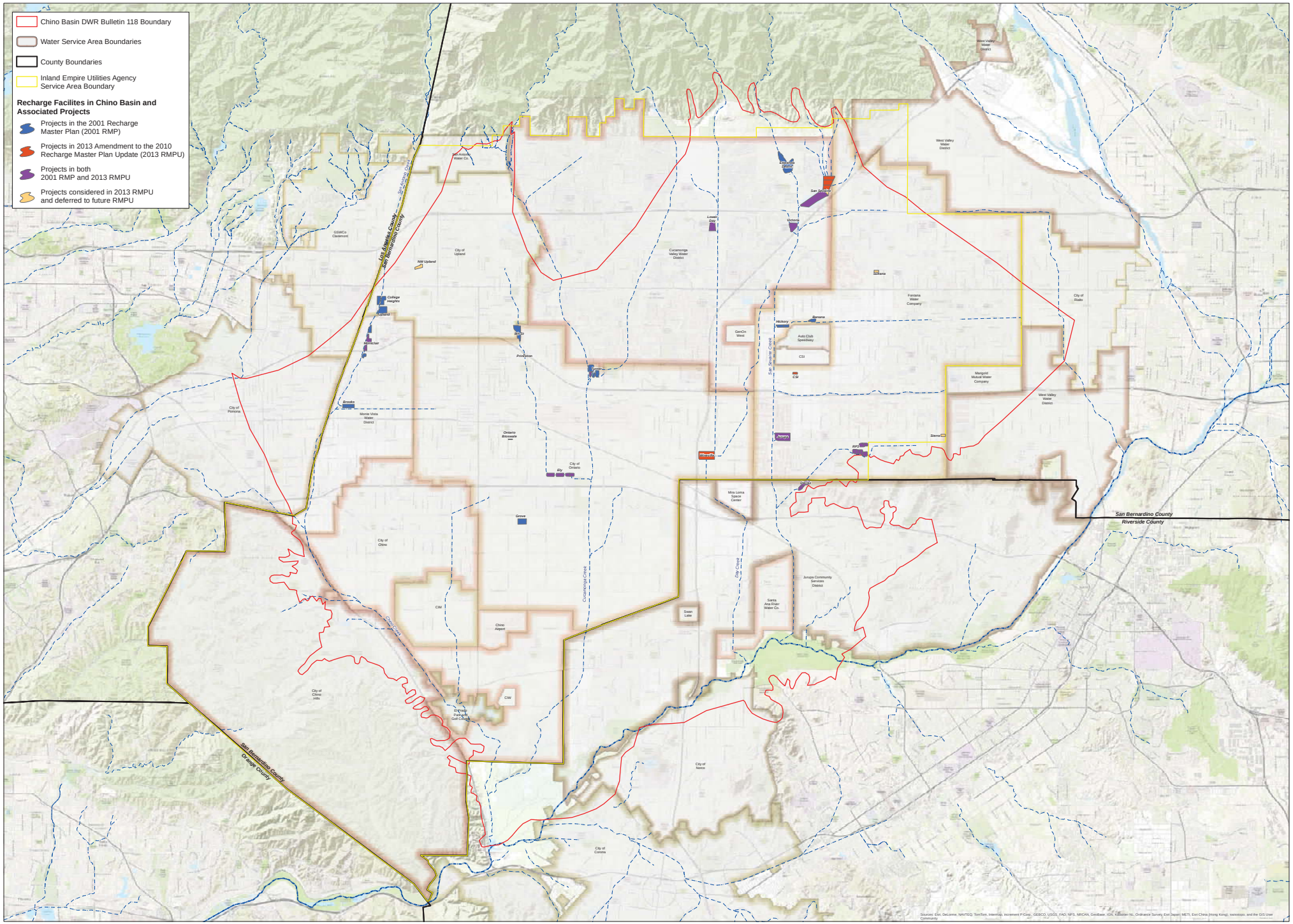
0 5 10 Kilometers

Inland Empire Utilities Agency
A MUNICIPAL WATER DISTRICT

Recharge Facilities and Channel Lining History in the Chino Basin

Plate 3



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Date: 20160112

Chino_Water_Service_Areas.mxd

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0 5 Miles

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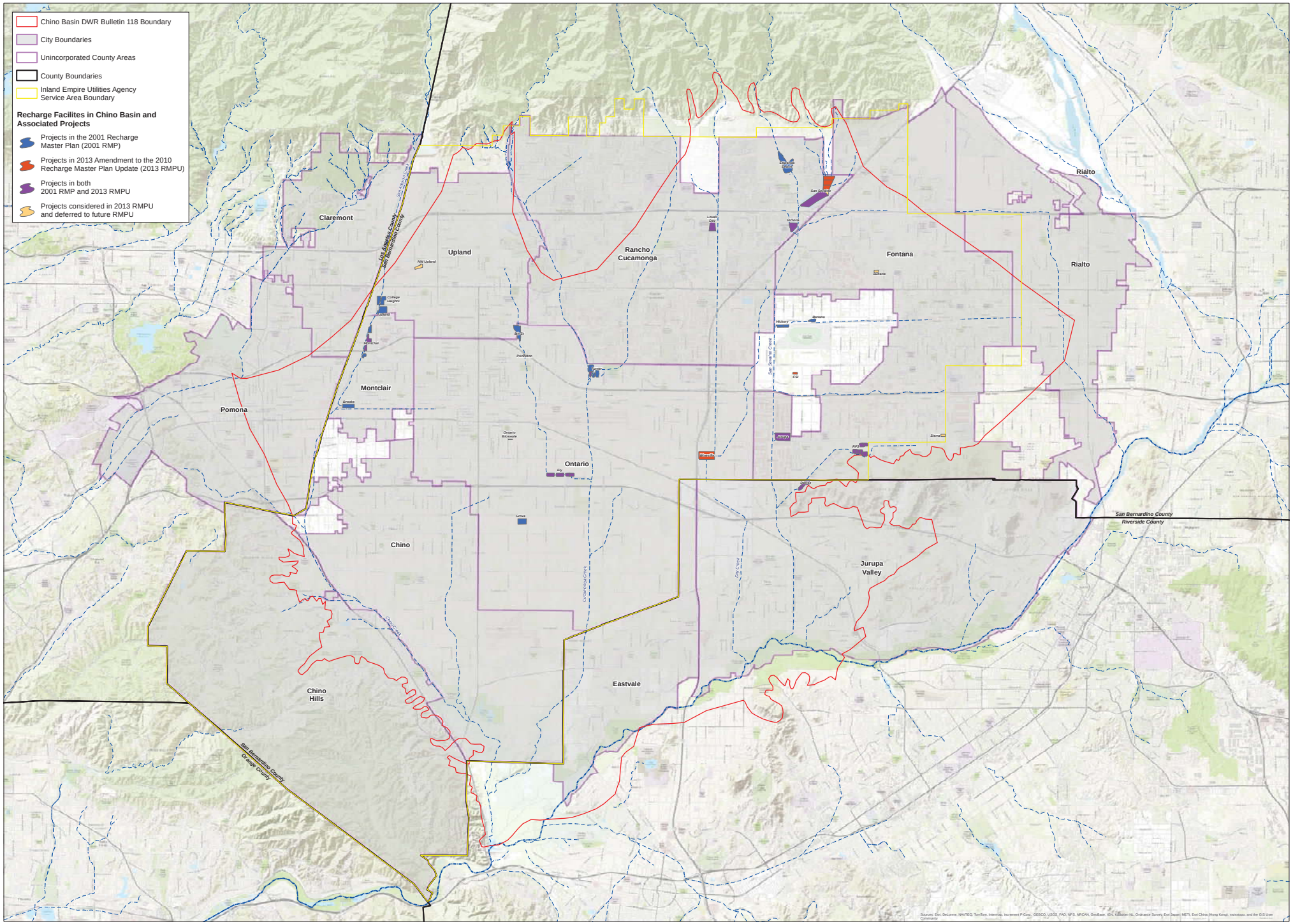
Inland Empire Utilities Agency

Water Service Areas and Recharge Facilities in the Chino Basin

Plate 4



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Author: GAR
Date: 20160112
Chino_LUA.mxd

N

0 5 Miles

0 5 10 Kilometers

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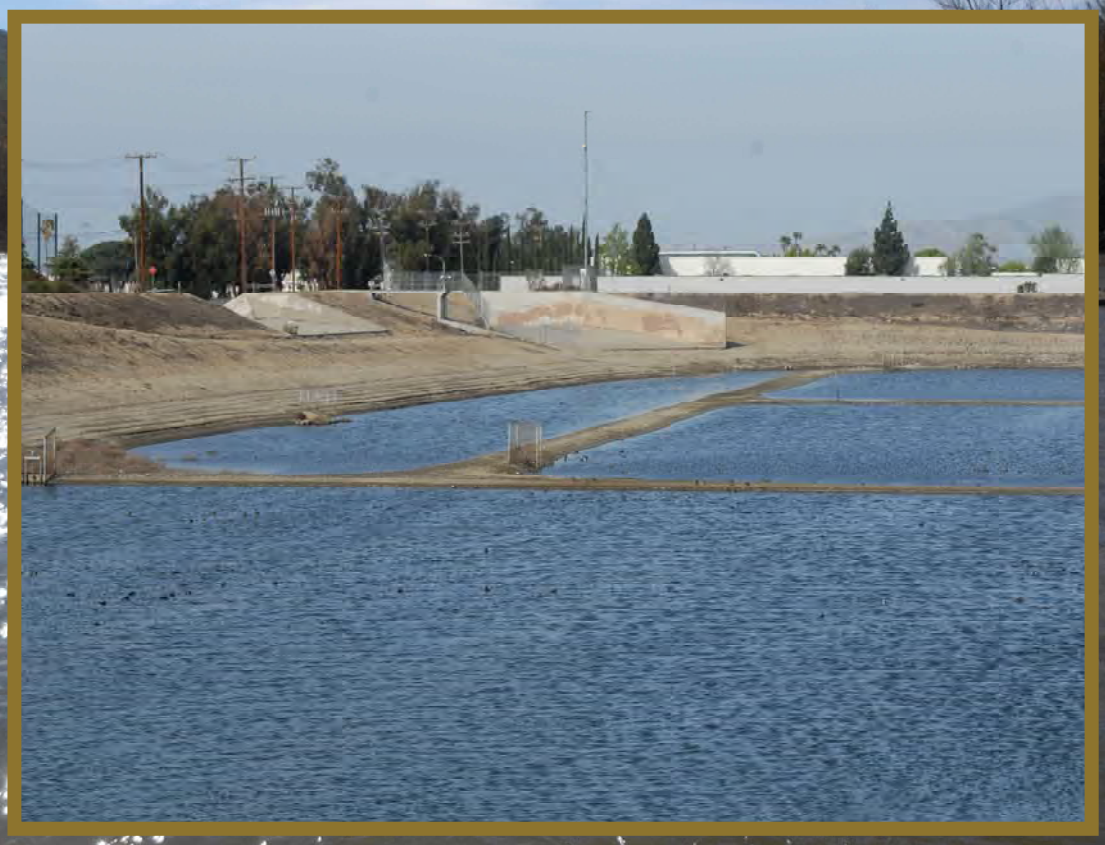
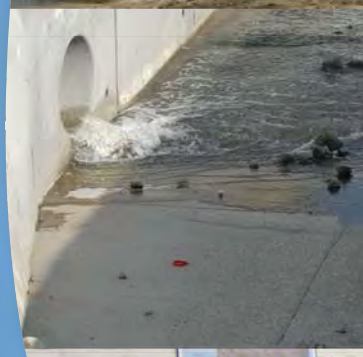
A MUNICIPAL WATER DISTRICT

Land Use Control Agencies and Recharge Facilities in the Chino Basin

Plate 5





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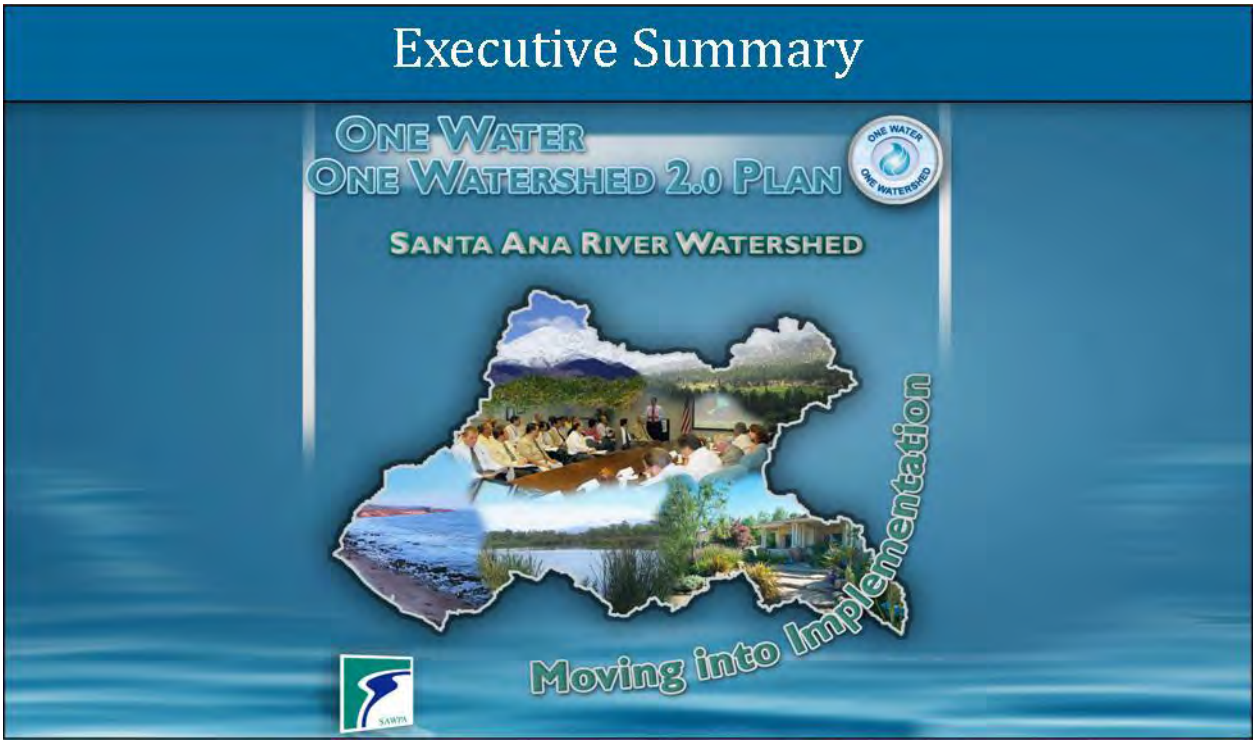
Executive Summary



The Santa Ana River Watershed faces enormous challenges as it strives to adapt to changing conditions, many of which are at an unprecedented scale in its modern history. The watershed's population, already one of the most densely populated in the State, continues to grow and urbanize, increasing demands on water supply, water quality, and flood management. Even with its plentiful groundwater resources, several basins now are experiencing declining groundwater levels and overdraft conditions. With the uncertainties of climate change and its impacts, environmental concerns are taking even greater precedence than they ever have in the past, affecting how we manage water for the future.

Most agree that the water management approaches of the past several decades are no longer sustainable in today's environment and economic climate. And most agree that a more integrated and collaborative approach to water resource management will show tremendous promise to water resources everywhere. But in the Santa Ana River Watershed, this approach is not new; it has been our practice and legacy since the first integrated plan was approved by the Santa Ana Watershed Project Authority (SAWPA) Commission in 1998.

In a nutshell, the goal of yesteryear was affordable water for a growing economy. But over time, the goal has changed to become a more complicated balancing act of environmental sustainability, quality of life and, economic growth in a changing environment dominated by water and financial scarcity. The strategy to achieve this goal is integrated water management. This means the various silos of water supply, flood management, water quality, ecosystem restoration, and recreation are brought together as one. Another way to think about it is that while the drop of water may at different times be characterized by different elements, it is still the same drop of water.

The benefits of this approach are better coordination across functions that are often managed separately and across a broader geographic scale larger than the boundaries of individual agencies. Through integration at the watershed scale, economic and environmental performance is more effectively balanced. This water resource planning approach based on a watershed basis has even been recognized by independent review, objective and nonpartisan research organizations such as the Public Policy Institute of California, which cited SAWPA as an excellent example of integrated water management in the State.

> SAWPA 's approach – coordination, cooperation, and integration of water agencies to pool resources and manage water at the basin scale-is one of California's best models for integrated water management.
>
> *Public Policy Institute of California 2011 "Managing California's Water – From Conflict to Reconciliation"*

The Santa Ana River Watershed continues to progress with many "bright spots" and pilot projects accomplished to date. The use of sophisticated "big data" analytics continues to set us apart, resulting in a more robust watershed and a very competitive position to compete for State and Federal funds.

The "One Water One Watershed" (OWOW) 2.0 Plan is the Santa Ana River Watershed's integrated regional water management (IRWM) plan. This plan reflects a collaborative planning process that addresses all aspects of water resources in a region or watershed, in our case. It includes planning of future water demands and supplies over a 20-year time horizon within the watershed as a hydrologic and interconnected system. The plan represents collaboration across jurisdictions, and political boundaries involving multiple agencies, stakeholders, individuals, and groups; and attempts to address the issues and differing perspectives of all the entities involved through mutually beneficial solutions. The plan reflects a new suite of innovative approaches that instead of relying solely on continued imported water deliveries to meet growing water demands in the region, is leading with a water demand reduction strategy. These approaches include the following:

- Multi-beneficial projects and programs that are linked together for improved synergy
- Proactive innovative, and sustainable solutions
- Integrated regional solutions supporting local reliability and local prioritization
- Watershed based project and programs that effectively leverage limited resources, promote trust and produce a greater bang for the buck
- Integrates water supply, water quality, recycled water, stormwater management, water use efficiency, land use, energy, climate change, habitat, and disadvantaged communities and tribes
- Coordinates resources so that water is used multiple times
    - Manages stormwater for drinking water
    - Treats wastewater for irrigation and groundwater replenishment
    - Builds or modifies parks to support water efficiency, ecosystem habitat, and stormwater capture
    - Improves water quality pollution prevention
    - Addresses energy and water nexus

The OWOW 2.0 Plan was funded by the SAWPA member agencies with grant funding assistance from the California Department of Water Resources (DWR) through the Proposition 84 IRWM Planning Grant program, and a funding partnership from the U.S. Bureau of Reclamation (Reclamation) through their Basin Studies program. Work with Reclamation, the State, local and non-profit organizations provided the OWOW 2.0 Plan with the necessary resources to expand outreach and support that ultimately will create more cost effective integrated water resource management solutions.

In the final analysis, the prescription for success is clear; we need to "double down" on integrated water management, strengthen the alignment among all government agencies, and invest in innovation and infrastructure. For the Santa Ana River Watershed, the road map for this success is our IRWM plan known as the OWOW Plan.

The emphasis of this new OWOW 2.0 Plan is that all people are encouraged to adopt a water ethic that focuses on understanding where their water comes from, how much they use of it, what they put into water, and where it goes after they finish using it. To meet growing water demands in the region, a new suite of approaches to planning are needed now that lead with a water demand reduction strategy.

Analysis and Support Tools

To support implementation of the OWOW 2.0 Plan, SAWPA in conjunction with its funding partners, conducted research and analyses on climate change impacts to the watershed, and developed a variety of new computer support tools to support our modern water management goals. Under this Plan, new resource tools and analyses were developed to help water resource managers adapt to changing climate conditions, support project proponents in better integrated solutions, assist analysis of watershed performance over time, and provide the public better access to water quality for beneficial use.

Through the work of Reclamation, an interactive climate change modeling tool was developed to provide water planners with information on potential impacts of climate change within the Santa Ana River Watershed. This tool provides a simplified modeling framework for evaluating climate change impacts, as well as mitigation/adaptation alternatives. The climate change tool enables the user to explore, identify, and download custom climate change data for various scenarios modeled for the Santa Ana River Watershed**.** Some of the results of the climate change analysis for the watershed that address common public concerns are as follows:

Will surface water supply decrease?

- Annual surface water is likely to decrease over future periods.
- Precipitation is projected to show long-term slightly decreasing trends.
- Temperature is projected to increase, which will likely cause increased water demand and reservoir evaporation.
- Snow melt water runoff is projected to decrease.

Will I still be able to go skiing at Big Bear Mountain Resorts?

- The projected warmer temperatures would result in a delayed onset and shortened ski season. Both

Big Bear Mountain Resorts lie below 3,000 meters and are projected to experience declining snowpack that could exceed 70% by 2070.

How many more days over 95°F are expected in Anaheim, Riverside, and Big Bear City?

- By 2070, it is projected that the number of days above 95°F will quadruple in Anaheim (4 to 16 days) and nearly double in River*side* (43 to 82 days). The number of days above 95°F at Big Bear City is projected to increase from zero days historically to four days in 2070.

Another powerful tool that Reclamation developed under the OWOW 2.0 Plan is an interactive green house gas (GHG) modeling tool to provide water planners and the public about the impacts of GHG within the Santa Ana River Watershed. This tool enables the user to explore, identify and download custom GHG data for a suite of water technologies modeled for the Santa Ana River Watershed. It also will exhibit energy consumption in the delivery and treatment process with relation to water. In accordance with AB – 32, which requires regions to reduce their overall GHG emissions, the tool also evaluates both water supply and demand in the Santa Ana River Watershed. This tool will prove to be very useful within the watershed because it allows users to calculate different scenarios, which can be used to compare each outcome and result. Further, the tool can be adapted to individual projects and is anticipated for use in future GHG emissions calculations by project proponents.

Santa Ana River Watershed Water Quality Tools

SAWPA, partnering with the Santa Ana Regional Water Quality Control Board and local stakeholders, has developed a suite of tools to provide water planners and the public access to water quality information relating to designated beneficial uses, water quality objectives, and water quality data for water bodies and waterways within the Santa Ana River Watershed.

Watershed Assessment Tool, Plan Performance and Monitoring

In order to track progress, SAWPA has developed a system to monitor the implementation of the OWOW Plan and projects implemented under OWOW. The monitoring takes place at two levels, the plan level and project level, to:

- Ensure progress is being made toward meeting objectives of the Plan
- Ensure specific projects identified in the Plan are being implemented as planned in terms of schedule, budget, and technical specifications
- Identify potential necessary modifications to the Plan or to specific projects, to more efficiently and effectively accomplish the goals and objectives of the Plan
- Provide transparency and accountability regarding the disbursement and use of funds for project implementation

To tie the plan and project monitoring together, SAWPA recognized the need for an interface process of measuring progress on meeting the goals and objectives, as well as the health of the Santa Ana River Watershed. SAWPA engaged the services of the Council for Watershed Health, a nonprofit organization, and Dr. Fraser Shilling of the University of California, Davis to develop a watershed assessment framework for the Santa Ana River Watershed. The Council and Dr. Shilling worked with the OWOW Pillars, workgroups of experts and stakeholders organized generally based on water resource management strategies, to update the watershed management goals, establish planning targets, and

utilize data indicators from existing datasets to track progress. With the input of SAWPA staff, a new tracking computer tool was created, incorporating this work that will allow managers to evaluate and assess progress, and assure actionable results for implementation.

Vision, Mission and Challenges

Under OWOW 1.0, the vision for the watershed was developed and continues under the OWOW 2.0 Plan as follows:

1. A watershed that is sustainable, drought-proofed and salt-balanced by 2035, and in which water resources are protected and water is used efficiently
2. A watershed that supports economic and environmental viability
3. A watershed that is adaptable to climate change
4. A watershed in which environmental justice deficiencies are corrected
5. A watershed in which the natural hydrology is protected, restored, and enhanced
6. A water ethic is created at the institutional and personal level

The mission of the OWOW Plan is to create opportunities for smarter collaboration to find sustainable watershed-wide solutions among diverse stakeholders from throughout the watershed. Clinging to the path of yesteryear will place us at greater risk of producing results with limited impact and unintended consequences. Our 21st Century plan creates a blueprint for more effective water resource management by using data and tools to keep us better informed and allowing us to be more productive in using less energy and producing less GHG emissions.

To achieve this vision and mission, stakeholders must address four major threats, which we have dubbed the Four Horsemen of the Apocalypse: 1) Climate Change resulting in reduced water supplies combined with increased water needs in the region; 2) Colorado River Drought Conditions resulting in pressures on imported supply due to upper basin entitlements and continued long-term drought; 3) San Joaquin-Bay Delta Vulnerability resulting in loss of supply due to catastrophic levee failure or changing management practices of the Delta; and 4) Population Growth and Development resulting in interruptions in hydrology and groundwater recharge while increasing water needs.

To implement OWOW 2.0 and adjust to current affairs, SAWPA and stakeholders needed to adapt to address the new challenges, the Energy and Fiscal Crises. The Four Horsemen of the Apocalypse herd has grown to six. The Fiscal Crisis reflects the impacts of the Great Recession commonly marked by a global economic decline that began in December 2007, and took a particularly sharp downward turn in September 2008. Some say the epicenter was the Inland Empire. By late 2013, the recession remains a part of our lives resulting in far fewer State and Federal funds, and State bond funding being deferred each year as the realization that they would not likely be supported by the California electorate.

Recent energy developments such as the closure of the San Onofre Nuclear Generating Station, have forced us to recognize the water-energy nexus and the need to address our energy needs and escalating costs for delivering energy. Energy costs can be reduced by water agencies through energy efficiency measures, while teaching the public that water conservation equates to energy conservation and thus money saved.

Goals, Objectives, Targets and Indicators

As previously stated, in order to achieve the watershed's vision, the Pillars worked with the Council of Watershed Health on updating the goals and objectives for the OWOW 2.0 Plan as part of the new watershed assessment framework.

The Pillars and the Council selected five areas: water supply, hydrology, open spaces, beneficial uses, and effective and efficient management. Using these newly defined goals and objectives, an assessment process was established that will assure actionable results for implementation.

Thereafter, the new goals and objectives were shared with the Steering Committee for their acceptance. Planning targets within the watershed along with data indicators were developed to track progress and allow measurement of the extent to which the plan objectives are being met. To achieve the updated goals and objectives, resource and broad management strategies were investigated through work of the Pillars. Quantifiable planning targets were developed in conjunction with the 20-year planning horizon of Year 2035.

Goals	Objectives
Maintain reliable and resilient water supplies and reduce dependency on imported water	•Decrease water demand •Increase water-use efficiency •Increase use of rainfall and snowpack as a resource •Increase use of recycled water •Sustainably develop local water resources •Maintain sufficient storage to overcome multi-year (3 year) drought over a ten year hydrologic cycle •Reduce green-house-gas emissions and energy consumption from water resource management
Manage at the watershed scale for preservation and enhancement of the natural hydrology to benefit human and natural communities	•Preserve and restore hydrologic function of forested and other lands •Preserve and restore hydrogeomorphic function of streams and water bodies •Safely co-manage flood protection and water conservation •Include ecosystem function in new development planning and construction
Preserve and enhance the ecosystem services provided by open space and habitat within the watershed	•Increase the capacity of open space to provide recreational opportunities without degrading its quality or increasing its consumption of water & energy •Protect existing and restore native habitats •Protect and maintain healthy forests •Manage aquatic and riparian invasive species •Protect estuarine and marine near-shore habitats •Reduce ornamental irrigated landscapes •Improve management support for landscaping that utilizes native and drought tolerant vegetation •Protect and Restore wildlife corridors •Protect endangered and threatened species and species of special concern through improved habitat
Protect beneficial uses to ensure high quality water for human and natural communities	•Attain water quality standards in fresh and marine environments to meet designated beneficial uses •Protect and improve source water quality •Achieve and maintain salt balance in the watershed
Accomplish effective, equitable and collaborative integrated watershed management	•Improve regional integration and coordination •Ensure high quality water for all users •Balance quality of life and social, environmental and economic impacts when implementing projects •Maintain quality of life •Provide economically effective solutions •Engage with disadvantaged communities to eliminate environmental injustices •Engage with Native American tribes to ensure equity •Reduce conflict between water resources and protection of endangered species

The targets and indicators are listed in Chapter 4.3, Planning Targets.

Goals	Performance Targets for 2035
Maintain reliable and resilient water supplies and reduce dependency on imported water	•Conserve an additional 256,500 AFY of water through water use efficiency and conservation measures •Create 58,000 AFY using a combination of additional wells, treatment, conjunctive use storage and desalination of brackish groundwater •Increase production of recycled water by 157,000 AFY •Increase both centralized and distributed stormwater capture and recharge by 132,000 AFY •Develop 54,000 AFY of ocean water desalination
Manage at the watershed scale for preservation and enhancement of the natural hydrology to benefit human and natural communities	•Reduce flood risk in 700 acres using integrated flood management approaches. •Remove 500,000 cubic yards of sediment from debris basins and reservoirs
Preserve and enhance the ecosystem services provided by open space and habitat within the watershed	•Preserve or restore 3,500 acres of terrestrial aquatic habitat •Construct 39.5 miles of additional Santa Ana River Trail and Parkway
Protect beneficial uses to ensure high quality water for human and natural communities	• Reduce non-point source pollution by treating an additional 35 MGD of surface and stormwater flow, emphasizing higher priority TMDL areas • Remove an additional 25,000 tons of salt per year from the watershed
Accomplish effective, equitable and collaborative integrated watershed management	•Engage with 50% (approximately 35) Disadvantaged Communities within the watershed •Engage with 100% of the Non-Federally Recognized Tribes in the watershed

OWOW Planning Process

SAWPA officially launched its OWOW 2.0 planning effort on April 20, 2011, with the signing ceremony of the agreement with Reclamation. The work commenced in earnest with the first meeting with the Pillar Co-chairs. Regular workshops throughout the watershed were held with more than 100 agencies and non-profit organizations spanning Riverside, San Bernardino, and Orange counties. From the very beginning, the process has been open to and has received the participation of representatives from all

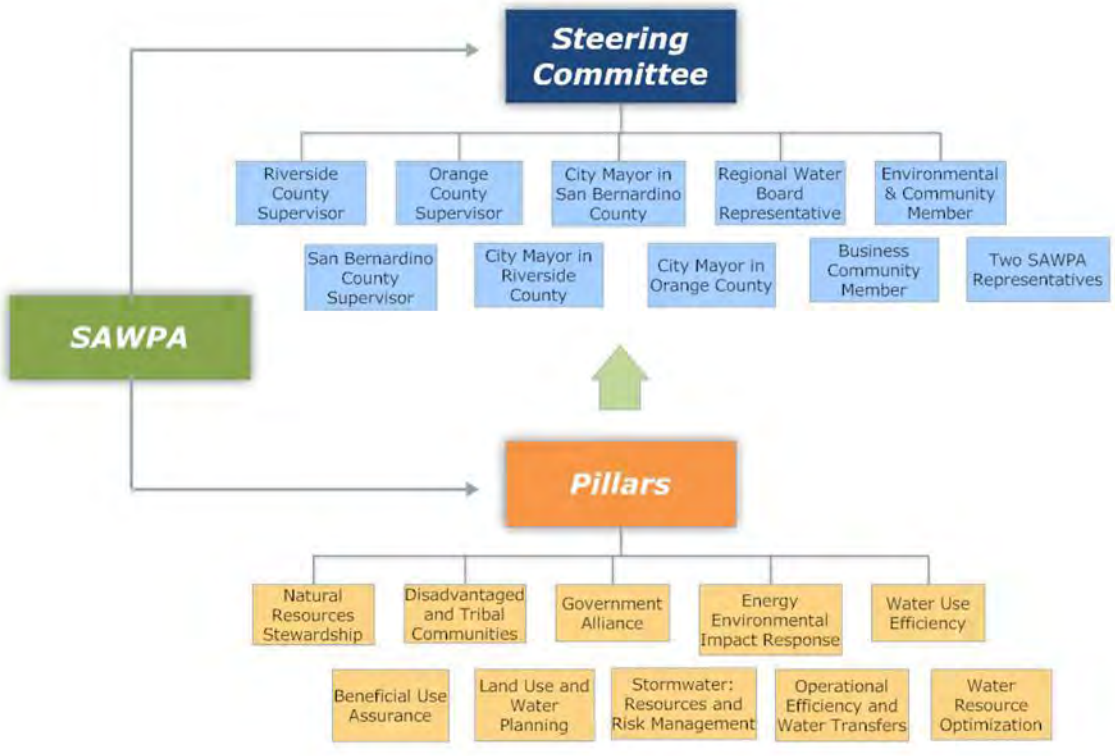
geographic regions and political jurisdictions within the watershed, and from diverse representatives of different sectors of the community (governments, water agencies, the development and environmental community, and the public).

As with the OWOW 1.0 Plan development, the OWOW 2.0 Plan utilized a "bottom up" approach for governance and involvement. Every effort was made to encourage the development of a shared vision and the involvement and participation of all watershed stakeholders in key discussions of major water resource issues, concerns, problems, goals, and objectives, with a particular focus on supporting multi-beneficial system-wide implementation. By expanding the involvement and collaboration to the *on-the-ground* level, greater buy-in and support were realized for this planning development process.

OWOW 2.0 Governance

As with OWOW 1.0, the OWOW 2.0 Plan is led by an 11-member Steering Committee composed of elected officials from counties and cities in the watershed, representatives from the environmental, regulatory, and business communities, and representatives from SAWPA.

The Steering Committee's role is to serve as the developer of integrated regional water management goals and objectives for the watershed, and to act as the oversight body that performs strategic decision making, crafts and adopts programmatic suites of project recommendations, and provides program advocacy necessary to optimize water resource protection for all.

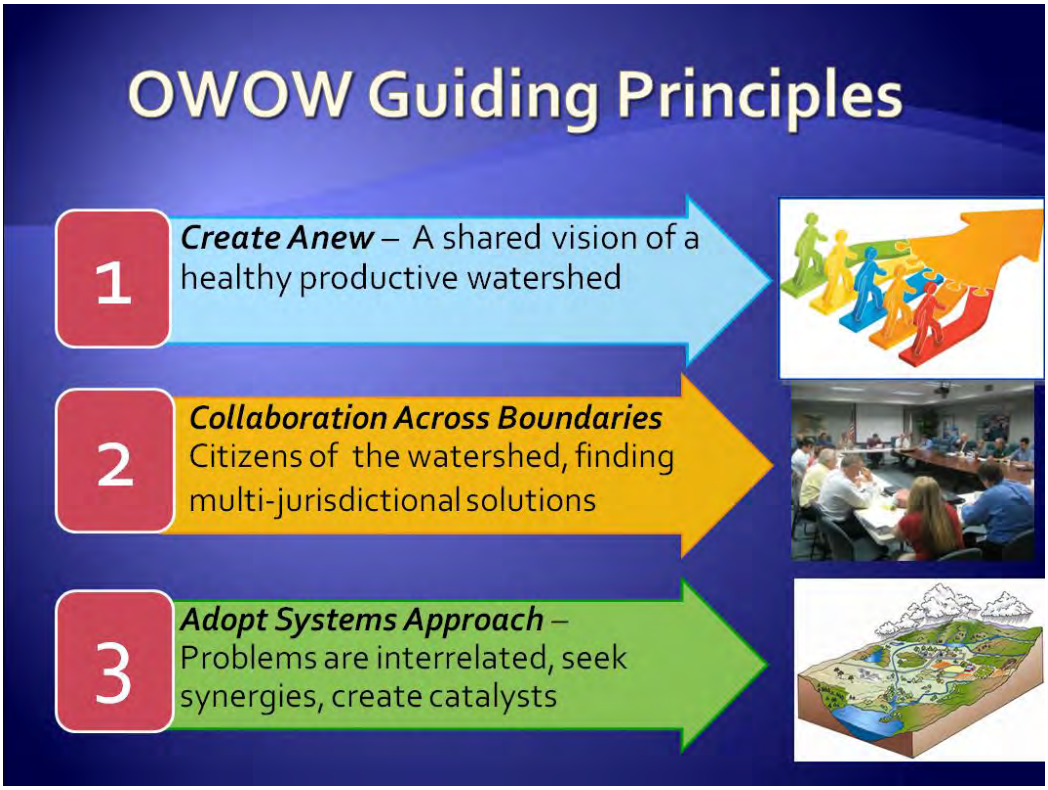


The Steering Committee is supported by technical experts assembled into ten groupings (known as Pillars), generally aligned along major water resource management strategies, but renamed under the OWOW 2.0 Plan to reflect greater integration and synergy.

While SAWPA facilitates the planning process and provides technical input and support through its staff and consultants, the development of the goals and strategies of the Plan, as well as the decision making process, are under the purview of the Steering Committee and the SAWPA Commission, with support of the Pillars and with consideration to comments from the public.

Pillar Work and Key Findings

Under OWOW 2.0, more emphasis is being placed on the watershed scale, and multi-benefit and multi-purpose solutions. Multi-beneficial projects and greater diversification of water management approaches are achieved through greater collaboration and cooperation, building trust among stakeholders, viewing the watershed as a hydrologic whole, working in concert with nature, and seeing each problem as interrelated that provides opportunities for synergy and efficiencies. These OWOW guiding principles were shared with the Pillars and the watershed stakeholders on multiple occasions.



In preparation for the next phase of OWOW 2.0 planning, SAWPA directed that the OWOW 2.0 Plan was not intended to be merely an update of previous planning data from the OWOW 1.0 Plan, but rather would focus on identifying integrated and watershed-wide implementation actions. To achieve this, SAWPA conducted innovative brainstorming processes with the Pillars utilizing the experience and skills of local experts to inspire and promote integrated system-wide implementation actions that address water resource challenges in the Santa Ana River Watershed.

Starting in September of 2011, three well known water resource experts dubbed the "Master Craftsmen", were tasked to develop a list of conceptual project concepts and to describe the spatial, temporal, regulatory, economic, political, and physical barriers that impair the ability to implement

watershed-based implementation actions that support the vision articulated in the OWOW Plan. From these Master Craftsmen meetings, a white paper was developed that identifies 13 key examples of watershed-based water resource management concepts that, when implemented, would provide tangible and measurable benefits by removing impairments. These watershed-based concepts are ideas, vetted by the Pillars, and provide significant additional benefits such as habitat restoration and increased habitat connectivity. Two types of concepts were included: (1) those that require implementation of capital projects, and (2) those that are programmatic and focus on establishment of regional management practices or policies that increase sustainability of existing resources.

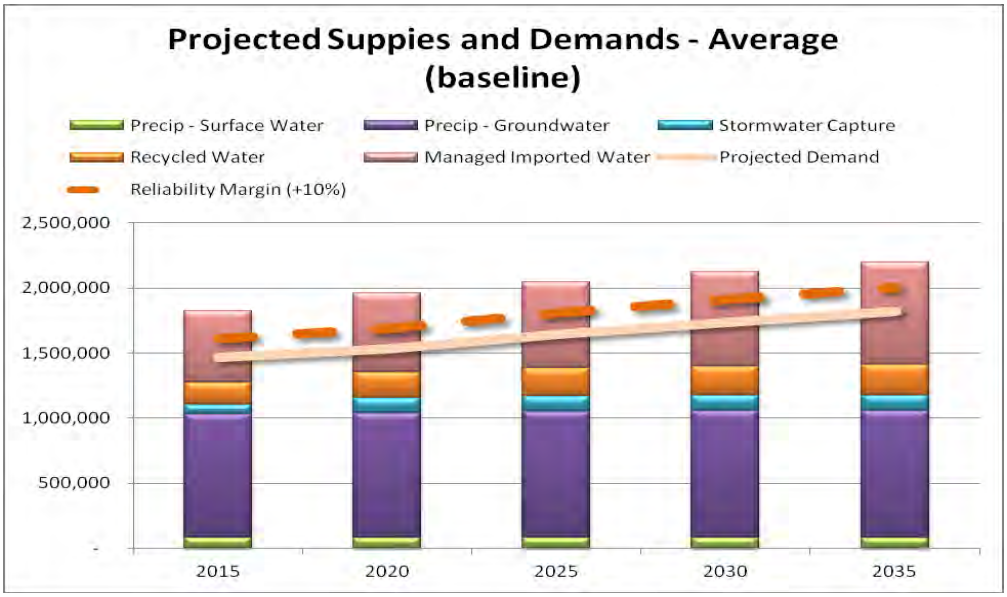
These ideas and concepts were approved by the Steering Committee and the SAWPA Commission. Thereafter, the Pillars commenced their respective meetings over the following 18 months of the OWOW 2.0 planning. They investigated new regional implementation actions within their Pillars that could lead to multiple, integrated benefits that, in turn, could be linked and integrated with other Pillar implementation actions. In addition to conceptual implementation actions, the Pillars developed key findings that will support implementation described as follows:

Water Use Efficiency Pillar – Key Findings

- Water use efficiency practices remain the number one water resource management priority for the watershed.
- Agencies and their partnerships with each other and private industry will continue to collaborate and develop new programs promoting water use efficiency.
- The ultimate goal will be to get water customers to automatically base decisions on what is the most water efficient way to plan, implement, and maintain devices and landscapes. This will require customer education and continued incentives to promote water use efficiency.
- Landscape demonstrates the greatest potential for water savings. Therefore, the Water Use Efficiency Pillar will move forward with collaborative projects that primarily emphasize outdoor efficient use of water.

Water Resource Optimization Pillar - Key Findings

Based on the work of the Water Resource Optimization Pillar, the projected supplies and demands for the average year are as follows:



A key finding from this Pillar's analysis is that with implementation of the 20% water demand reductions by 2020, as well as a reliability margin of 10%, water supplies will be adequate to meet demands through the 20-year planning horizon or Year 2035. This evaluation also was conducted for the single year, the historical year that received the lowest amount of imported water, and the multi-year drought, three- year period that received the lowest amount of imported water. Their findings show that the watershed in the aggregate will be able to meet its demands in a single year drought with a reliability margin of 11% in 2035, and for a multi-year drought of 13% in 2035. The watershed is able to make it through these drought years by relying on the native water, precipitation as surface water and precipitation as groundwater, and imported water storage programs that store water when it is available during wet periods for use during drought periods, and on recycled water that is not impacted by weather.

The Water Resource Optimization Pillar concludes that there is more to be done to ensure water supply reliability for the future. This is particularly true in the face of climate change that may impact local precipitation patterns, the need for intra-basin transfers to maintain groundwater levels, the State-defined mandate for regions to become less dependent on Delta imported water, and a significant funding requirement of water use efficiency and infrastructure to meet future demands.

Beneficial Use Assurance Pillar - Key Findings

- Surface water quality monitoring is not coordinated within the watershed leading to duplicative sampling in some areas and inadequate sampling in others. Work on a plan to improve coordination and development of a regional approach to monitoring that will generate better information and be less expensive.
- New statewide regulations setting biological objectives and nutrient objectives for surface water are being developed and will be a compliance challenge for wastewater agencies. Participate in rule making process to support development of policies and regulations that are effective and efficient.

- A small number of small water systems in operation within the watershed that do not have resources for monitoring and proper operations and maintenance, may result in drinking water provided to customers that is in violation of drinking water standards. Work with California Department of Public Health and county health departments to identify small system water providers, if any, which need assistance with providing safe drinking water. Develop a plan to address any small system water providers that need assistance.
- Sediment deposition in some areas creates water quality impairments, reduces aquatic habitat, and reduces water conservation storage. Reduced sediment flow downstream of dams causes armoring of river/creek beds resulting in reduction in percolation capacity, aquatic habitat, and beach replenishment. Support USACE/OCWD Prado Basin Sediment Management Demonstration Project and Newport Bay Stakeholders to reduce sediment load into Upper Newport Bay.

Land Use and Water Planning Pillar – Key Findings

- Water supply agencies should be consulted early in the land use decision-making process regarding technology, demographics and growth projections.
- City and county officials, the watershed stakeholders**,** Local Agency Formation Commissions, special districts and other stakeholders sharing watersheds should collaborate to take advantage of the benefits and synergies of water resource planning at a watershed level.
- Plans, programs, projects and policies affecting land use and water should be monitored and evaluated to determine if the expected results are achieved and to improve future practices.
- Limited, accessible, and low-cost, outdoor recreational opportunities should be promoted throughout the watershed.

Stormwater: Resource and Risk Management Pillar – Key Findings

- Comprehensive and integrated stormwater management projects driven by a multi-stakeholder project paradigm can more effectively and efficiently address watershed needs. Such projects can assist stakeholders to achieve compliance with the Municipal Stormwater National Pollutant Discharge Elimination System Permits (MS4 Permits), while increasing capture of stormwater and other flows and groundwater recharge using favorable cost benefit approaches.
- Reducing the risk of loss of life and property damage due to flooding remains a high priority within the Santa Ana River Watershed. The completion of the Santa Ana River Mainstem Project will reduce the risk of a catastrophic flood event in the Santa Ana River Watershed. However, there remains significant flood risk related to tributary watercourses within the watershed, compounded by potential impacts of wildfires and earthquakes.

Natural Resources Stewardship Pillar – Key Findings

- A plan for sustainable management of conservation areas with targeted restoration efforts is essential for preventing further deterioration of habitat. Consideration for characteristics of each of the main habitat types: Chaparral/forest, Alluvial fan; Riparian, Wetland, and Coastal and their specific ecosystems, require habitat-specific management plans and restoration criteria.
- Creating sustainable wildlife corridors requires land use planning coordinated across jurisdictional boundaries. Cooperation also must take place among all of the current regional conservation plans, mitigation providers, resource conservation districts, and non-profit conservation organizations.

- Consensus among all agencies and organizations with ownership/stewardship over areas of the Santa Ana River Mainstem and tributaries should be sought that provides for long-term protection of areas where habitat restoration efforts are occurring or need to occur. This kind of cooperative agreement will be critical to the ability of governmental and non-profit organizations to secure mitigation funding to do the necessary habitat restoration work needed in the watershed.
- Grant and bond funding in the watershed have funded the removal of thousands of acres of invasive plants, initial and ongoing restoration of habitat areas, biological monitoring of sensitive species, and conservation of habitat areas. All of these sources and more should continue to support restoration and ongoing maintenance.
- Much of the remaining invasive plant biomass and areas that could benefit from re-establishment activities (removal of invasive species followed by long-term, active planting and biological monitoring) in the watershed is on land owned by Federal, State, and local governments for purposes other than water-oriented habitat conservation. These are prime lands for future habitat restoration projects with multi-use and benefit.

Operational Efficiency and Water Transfers Pillar – Key Findings

- Expand compliance with the SBx7-7 and implement projects that reduce per capita water usage by more than 20 percent by the year 2020.
- Create/ expand supply and system reliability during drought, emergency, and peak demand situations.
- Create/expand coordination with other agencies in the area and develop regional water management strategies that would increase conservation and local water supplies.
- Create/expand local recycled water reuse program(s) in the area with an OWOW 2.0 goal of 157,000 acre feet per year.
- Develop/Implement projects that protect groundwater resources, the environment and consider storage and transfers. These projects are important to assure that water is readily availability in the right place when we need it. This can be overcome with storage and transfers.

Disadvantaged and Tribal Communities Pillar – Key Findings

- Engaging Disadvantage Communities (DACs) and Tribes in water and related resources planning through effective outreach is good for both the community and the water sector itself. There are distinct differences due to cultural and historic context. Both need their voices heard during proposed project development.
- Today, DACs and some Tribes face critical and serious water and related resources challenges, such as failing septic systems, isolation, language barriers, flood risk, and lack of funding and or resources. It is imperative that the water sector and its key stakeholders recognize proposed DAC and Tribe water project needs, and engage these communities early in the process. The OWOW 2.0 process recognizes the various funding needs for DACs and Tribes, and the Federal and State funding programs available to them.
- From engaging and speaking with DAC residents and attending Tribal Council meetings, it is evident that there is a need for continuous networking resulting in consensus based development and implementation of project solutions.

Government Alliance Pillar – Key Findings

- Ensure that Federal and State agencies effectively partner in the management of water and other resources within the watershed, and consider other Pillars' perspectives in their support of OWOW goals and objectives.
- Periodically publish updates of the Resource Guide and post them on SAWPA's website.
- Use the Resource Guide's agency contacts, and assure that steps are taken to keep all information current.
- Continue coordination with various governmental agencies, as appropriate, for all proposed projects, initiatives, and integrated water and related resources activities to help identify necessary environmental compliance requirements and or potential areas of conflict.

Energy and Environmental Impact Response Pillar – Key Findings

- Annual surface water is likely to decrease over future periods with precipitation showing somewhat long-term decreasing trends. Temperature will increase, which is likely to cause increased water demand and reservoir evaporation. Projected decreases in precipitation and increases in temperature will decrease natural recharge throughout the basin.
- Management actions such as reducing municipal and industrial water demands or increasing trans-basin water imports within the watershed may be required to maintain current groundwater levels.
- Warmer temperatures likely will cause Jeffrey Pines to move to higher elevations and may decrease their total habitat. Forest health also may be influenced by changes in the magnitude and frequency of wildfires or infestations. Alpine ecosystems are vulnerable to climate change because they have little ability to expand to higher elevations.
- Increasing temperatures will result in a greater number of days above 95°F in the future. The number of days above 95°F gets progressively larger for all cities advancing into the future.
- Simulations indicate a significant increase in flow for 200-year storm events in the future. The likelihood of experiencing what was historically a 200-year event will nearly double (i.e. the 200-year historical event is likely to be closer to a 100-year event in the future). Findings indicate an increased risk of severe floods in the future, although there is large variability between climate simulations.
- Sea level rise is likely to inundate beaches and coastal wetlands and may increase coastal erosion. The effects on local beaches depend upon changes in coastal ocean currents and storm intensity, which are highly uncertain at this time. Sea level rise will increase the area at risk of inundation due to a 100-year flood event.
- Existing barriers are sufficient to deter seawater intrusion at Talbert and Alamitos gaps under a 3-foot rise in sea levels. However, operation of barriers under sea level rise may be constrained by shallow groundwater concerns.

To further enhance the integration and linkages among the recommended conceptual implementation actions suggested by the Pillars, Pillar Integration Workshops were conducted by SAWPA throughout the OWOW 2.0 Plan development period. The integration workshops included discussion of system-wide regional or watershed scale implementation actions, addressing different components of the hydrologic cycle, evaluating linkages among proposed projects/programs, and developing and identifying synergy among projects and programs to create anew.

OWOW 2.0 Plan – Future Implementation

During the last two years, Pillars have been working together to write the next integrated water plan, OWOW 2.0. The Broad Planning/Management Guidance Strategies were distilled from that work and will serve to guide future planning and management in the watershed. The strategies reflect a change in thinking about water resource management. Historically, water activities were organized into different silos, and managers worked to achieve separate and individual goals that were thought to be unrelated. The water supplier's goal was to deliver water for a growing population and economy. The flood control manager's goal was to channelize stormwater to get it out of the community before it could harm people and property. The wastewater manager's goal was to highly treat wastewater before it is discharged into the river or ocean to be carried away. Managing the watershed and water resources as done in the past realized narrow singular goals, but did so with tremendous unintended consequences. The list of endangered species only grew longer, as did the list of impaired water bodies. Societal values have changed, water and funds are scarcer, and together we have realized that the old way is no longer viable.

These Broad Planning/Management Guidance Strategies are not projects or programs themselves. These strategies represent a shift from remediation to protection. It is the opportunity to be proactive rather than reactive. This can facilitate the vision we want, a sustainable and productive watershed, rather than only focusing on solving the problems that past practices have created.

These watershed planning and management strategies are separate and distinct from priorities assigned to evaluate projects for funding that are often dependent on the grant sponsoring agency criteria. These Planning/Management Strategies are meant to guide planning efforts and are *in no particular ranked or priority order* as shown below.

- **Demand Reduction and Water Use Efficiency**

Water use efficiency practices remain a key resource management priority for the watershed and a cost effective tool for reducing the gap between available supplies and projected demand. This is reflected through a reduced per capita water use as well as potentially reduced commercial and industrial water use. Although significant progress is anticipated with mandated reductions through 20% by 2020 legislation, more can be done. Many water use efficiency actions have been implemented locally, but these can be scaled watershed-wide. These include water rates structures that encourage conservation, also known as budget-based water rates, garden friendly landscaping and landscape ordinance application, smart controllers and irrigation nozzles, and turf buy-back programs, to name a few. The last acre foot of water is often the most expensive, reducing that cost goes far to keep water rates stable.

Monitoring data shows wasteful irrigation runs off yards, down streets and culverts collecting pet waste and pollution until it hits the receiving water with a toxic slug causing beach closures and fish kills. At great expense, cities have been tasked to clean up this dry weather urban runoff pollution. This cost can be avoided with successful water use efficiency.

It is understood too that there is a direct link of water use efficiency with energy efficiency and GHG emission reduction.

- **Watershed Hydrology and Ecosystem Protection and Restoration**

Implementing cost effective programs will protect and restore our watershed's ecosystem and hydrologic system so that it will sustainably produce the array of services including water resources. Recognizing that the Santa Ana River Watershed has multiple interrelated parts, a holistic approach to solving issues of supply, quality, flood, and ecosystem management is necessary. This approach recognizes that in order to achieve a healthy productive watershed, improvements starting at the top of the watershed with a healthy and managed forest effectively support downstream stormwater attenuation and runoff capture and water quality improvement. The emphasis is on source control rather than end-of-pipe treatment as a best management practice. Implementation actions under this priority include forest management, pollution prevention, low impact development, stormwater capture and flood management, and MS4 stormwater implementation.

- **Operational Efficiency and Transfers**

Cooperative agreements arising from water transfers, exchanges, and banking can resulted in better use of water resources. With the rich groundwater storage opportunities available in the watershed, expanding the groundwater storage with a variety of available water sources can be more much more cost effective than new surface storage. Such agreements will result in our ability to stretch available supplies and replace the storage lost by a shrinking snowpack. Projects under this category occur by collaboration and cooperation among the multitude of agencies and entities in the watershed, and agencies that import water into the watershed, expanding on the many past successful water agreements within the watershed. New banking agreements can represent both habitat mitigation

banking as well as groundwater banking. These agreements only can occur by entities working together and opening doors to improved efficiency and increased water supply reliance.

- **Innovative Supply Alternatives**

This strategy recognizes the need for more progress in a portfolio approach with expansion of innovative and effective 21st Century technology for water production, recycling, pumping, and desalinization. Traditionally these projects serve as an important component to achieving water supply reliability. Moving forward, a broader range of tools is available to us to serve both economic and environmental objectives. Projects under this category provide multiple benefits and thus can be mutually reinforcing. Brackish desalination and salinity management are necessary to sustain local supplies. Salinity management is essential for groundwater basin health in the watershed.

- **Remediation and Clean up**

Another strategy is implementing Total Maximum Daily Loads (TMDLs) and pollution remediation. Projects under this category must reflect projects that have region wide benefit, are integrated and have multiple benefits without a focus only on local or single purpose needs. Under this strategy, the focus is on preventing pollution and dealing with the pollution that has already occurred. This reflects a desire to duplicate the successes already established in the watershed to prevent and remediate pollution.

The Broad Planning/Management Guidance Strategies were presented and discussed with the Pillars and other stakeholders for possible prioritization of the five strategies. The feedback received is that all five strategies are a priority to the watershed. But as stakeholders of the watershed, entities are encouraged to consider the long term watershed planning approach as they consider competing alternatives to meet needs and give more merit or attention to strategies such as water use efficiency that has been traditionally found to be more cost effective in reducing water demands and generating water supply. Further, projects should consider system wide benefits before other alternatives. This applies particularly to pollution prevention at the source rather than having to address a chain of unintended and possibly negative consequences downstream for future generations.

Shown below is a list of Pillar Recommended Implementation Actions that were prepared based on the Pillar's work and other stakeholder input. These regional implementation actions are not listed in priority, nor are they in any particular order. They represent the integrated work of the Pillars that resulted from their collaboration internally and with other Pillars and are the solutions to the challenges that they identified in each of their Pillar chapters. This list does not represent a list of projects that been rated and ranked projects under the more formal Project Review Process defined under the OWOW 2.0 Plan. However, they are recommended implementation actions that reflect an emphasis on integration and system-wide solutions to the watershed challenges and include the 13 watershed-wide framework concepts previously discuss.

Each of the Pillar-recommended watershed-wide implementation actions eventually could become projects once they are more fully investigated and analyzed. Multi-agency project proponents for these implementation actions have not have been identified yet. It is anticipated that these recommended actions may best help fulfill the vision of the OWOW 2.0 Plan.

Pillar Recommended Implementation Actions
(In no particular order)

Title	Description
Water Rate Structures that Encourage Conservation	Create incentive programs for retail water agencies in the watershed to reduce water demand and help meet SBX7-7 required demand reductions.
Water Use Efficiency Incentive Program	Create an incentive program for expanded water use efficiency programs including cash for grass, landscape retrofit support, and California-friendly plant discounts. Utilize IEUA Residential Landscape Transformation Program and MWDOC Comprehensive Landscape Water Use Efficiency Programs as template.
Watershed Exchange Program	- Upper watershed foregoes development of more water recycling and provides future treated wastewater to the lower watershed via the Santa Ana River - Lower watershed provides "replacement" water to upper/middle watershed
Wet Year Imported Water Storage Program	- Upper watershed and MWDSC would implement this strategy - Goal: change MWDSC place of storage from Central Valley to Santa Ana River watershed - Develop MWDSC pricing structure to encourage more storage in watershed - Water stored in wet years for a reduced price. Water pumped in dry years for remaining Tier 1 price
Enhanced Santa Ana River stormwater capture below Seven Oaks Dam	Additional stormwater detained by Seven Oaks Dam could enable the diversion of up to 500 cfs and up to 80,000 acre-feet per year. This may require execution of new water rights agreement among SAR Watermaster parties.
Off River Storage and Supply Credits	Additional stormwater capture along the SAR tributaries could enhance capture/ recharge. Specific locations in the watershed would need to be defined. New recharge projects could allow for purchase of "MS4 Credits" by cities and counties as part of new development as a regional MS4 compliant recharge project.
Re-Operate Flood Control Facilities	Working with flood control agencies re-operate flood control facilities with the goal of increasing stormwater capture increasing flood get away capacity and revising decades old storage curves. Without any impending storms, the flood control agencies may be able to release stormwater at a slower rate. This relatively minor operational change would make stormwater flows easier to capture and put to use. It also would result in impounding the water longer, which would increase artificial recharge during the "holding period". This strategy has already been successfully implemented in some portions of the watershed.
Increase Surface Water Storage	Helps offset drought and climate change while also increasing watershed sustainability and less dependence on imported water. This project would supplement but not replace existing or proposed groundwater storage.
Increase Groundwater Storage	Helps offset drought and climate change while also increasing watershed sustainability and less dependence on imported water.

Title	Description
Inland Empire Garden Friendly Demonstration and LID Project	Using the Inland Empire Garden Friendly Program as a template, a demonstration project is proposed to quantify the benefits of installing Inland Empire garden friendly products and further demonstrate Low Impact Development features in a DAC neighborhood. The project would be modeled in part after the successful City of Santa Monica Garden-Friendly Project, as well as the Elmer Ave. Neighborhood Retrofit project in the LA Basin.
DAC Water Supply or Water Quality Improvement Projects	Provide funding support to assure drinking water standards are met such as in the County Water Company of Riverside near Wildomar. Construct new sewer system for the areas that have failing septic systems/undersized treatment facilities like Beaumont Cherry Valley.
Wetlands Expansion Watershed wide	Create new wetlands along the tributaries of Santa Ana River to provide for natural water quality improvement, ecosystem restoration and recreational opportunities. Water supply for such wetlands would be dry weather urban runoff and available recycled water and would be patterned after the Mill Creek Wetlands in Chino Basin.
Watershed wide Multi-Use Corridor Program	Create multi-use corridors along SAR and its tributaries and Upper Newport Bay tributaries in all three counties in watershed to provide for sustainable wildlife corridors, stormwater attenuation and capture, flood control, sediment reduction and erosion restoration, enhanced NPS pollution treatment, removal of non-native species, and creation of recreational trails,. In Riverside County, along Temescal Wash, in San Bernardino in San Timoteo Wash, in Orange County along Borrego Canyon Wash between Irvine Blvd and Town Center Drive.
Multi-Species Habitat Plan for Gap areas of Watershed	Create multi-species habitat plan for San Bernardino County and portions of Orange County. Though work is underway on the Upper Santa Ana Wash Land Management and Habitat Conservation Plan, there is no MSHCP covering the growing areas of southwestern San Bernardino County. Western Orange County is also not covered by an MSHCP.
Water conservation recharge optimization program	Establish a water conservation-recharge optimization plan for existing and potential future flood control facilities, using the example work of the Chino Basin Recharge Master Plan and implementation projects as a template.
Watershed wide geodatabase access	Connect existing county or program-specific geodatabases to create a comprehensive watershed geodatabase that provides access to appropriate stakeholders, and set up a data quality control and maintenance program. The main component County MS4 geodatabases are well under way.
Forest Restoration Projects	Expand forest restoration through fuels reduction, meadow and chaparral restoration projects to strategic areas above major stormwater recharge basins for flood control, water supply and water quality benefits.
Residential Self-Regenerating Water Softener Removal Rebate Program	Removal of self regenerating water softeners has been proven as an effective strategy to reduce TDS levels at WWTP and assure future salt discharge requirements. The project provides watershed-wide rebates and would be a joint program among water agencies in the watershed.
Salt removal projects to achieve Salt Balance	Expand groundwater desalination to key groundwater basins where TDS and Nitrate concentrations are approaching discharge limits. Locations may include Elsinore Basin, Perris Basins in EMWD and Riverside Basins.

Title	Description
Enhanced stormwater capture from the tributaries of the Santa Ana River	Develop additional stormwater capture projects along the SAR tributaries that support key groundwater management zones identified by SB, RV, and OC Geodatabases. Early estimates indicated a capture potential of 12,000 AFY.
Conjunctive Use Storage and Water Transfer Project using Wet Year and Dry Year Allocation	This project concept proposes a purchase by downstream entities of up to 45,000 AF of imported water to be recharged by the upstream agencies during wet years. Water would be purchased at a reduced imported water rate from MWD reflecting the savings of not storing the SWP water at one of MWD's own storage programs such as the Semi-Tropic Water Storage District and/or Kern County Water Bank. In dry years, downstream agencies could request upstream agencies to increase their groundwater production for three years by up to 15,000 AF per year in-lieu of direct deliveries from MWD, while MWD increases deliveries in the downstream area by an equal amount.
Salt Assimilative Capacity Building and Recycled Water Transfer Project	EMWD has the capability to discharge 15,000 AFY of recycled water into Temescal Creek. The recycled water discharge will be dependent on surplus recycled water available and not used within EMWD particularly during wet seasons. With the approval of the SAR Watermaster, this flow can be contractually added to the Santa Ana River base flow allocation at Prado. The water quality of EMWD's discharged recycled water may require some salinity mitigation by downstream parties to meet the RWQCB Basin Plan Objective in Orange County. The GWRS will be used to provide the required mitigation for the discharged water, and EMWD will pay downstream parties for the cost of that mitigation.
Riverside Basin Aquifer Storage and Recovery Project	Riverside Public utilities, in partnership with Valley District and others are developing a design for a rubber dam that would cross the Santa Ana River and be used to divert flows, while mitigating environment impacts. The project is currently anticipated to capture and recharge 15,000 AFY.
Watershed Invasive Plant Removal Project	The Santa Ana Watershed Association, the Front Country District Ranger on the San Bernardino National Forest and Southern California Edison had proposed a major an invasive plant eradication project for the Mill Creek Watershed. This project proposes to expand the San Bernardino Mountains Front Range Invasive Plant Removal Project to an invasive plant removal and restoration project in the Santa Ana River Watershed that has many partners and stakeholders extending from the coast to the headwaters.
Regional BMPs to manage municipal stormwater discharges	Develop regional BMPs including infiltration, harvest & reuse, and biotreatment as proposed under current MS4 Permits. Initial phase would be located in MSAR Pathogen TMDL area and expand into other areas of the watershed under future phases to address pathogen treatment.
Watershed-wide coordinated surface water monitoring program	Surface water quality monitoring is not coordinated within the watershed leading to duplicative sampling in some areas and inadequate sampling in others. In some cases this may lead to 303(d) listings that do not reflect real impairments. A new program to coordinate surface water quality monitoring to enhance efficiency and reduce costs is proposed. Sources of monitoring data would come from MSAR Watershed TMDL, SWQSTF, MS4 Stormwater Permits, and SCCWRP Bioassessment Program.
Watershed Urban Runoff Management	Establishing a Watershed Based Urban Runoff Management Fund to support the implementation of stormwater management programs. Components of this program

Title	Description
Fund	could include the regulatory basis for a watershed based program, the legal basis and authority for the fund, the agreements, and programmatic elements.
Santa Ana River Sediment Transport	Building upon an OCWD demonstration project, implementation of a full scale project that allows for the appropriate transfer of sediment to maximize recharge operations, restore habitat, and reduce operation costs.
Transportation Corridor Stormwater Capture and Treatment	New uses of the current transportation right of ways can be expanded to for capturing rain runoff and replenishing groundwater basins.
Modified Watershed Brine Management System	Optimizing the water used to transport brine so that less water is lost to the ocean through increased concentrating of brine or delivery to the Salton Sea for beneficial use.
Water Industry Energy Use Reduction Incentive Program	Supporting regional purchase and installation programs of water resource related greener energy projects that reduce capital costs and green house gas emissions.
Watershed Land Use Planning Tool Kit	Developing a tool kit that translates water principles to support watershed planning decisions and implements a jurisdictional outreach effort for relevant regional, county and city planning agencies that encourages adoption of the guidance ideology into General Plans and zoning codes at the local level.

OWOW Projects and Benefits

It is the intent of the OWOW planning process to transcend specific funding cycles. Projects are included in the OWOW 2.0 Plan based on the latest rating and ranking criteria and their merit to address the watershed's strategic needs, regardless of available funding opportunities at any given time. (See list in **Appendix K**)

Shown below is a list of the Round 1 Proposition 84 projects and the benefits that ultimately will be realized once all these projects are fully constructed. Round 2 projects submitted by SAWPA are under consideration by DWR for future grant funding with awards anticipated in early 2014.

OWOW Proposition 84, Round 1 Projects

Project	Project Sponsor	Total Local Cost	Grant Amount	Other State Funds Being Used	Total Cost
Groundwater Replenishment System - Flow Equalization	OCWD	$14,399,680	$1,000,000	$0	$15,399,680
Sludge Dewatering, Odor Control, and Primary Sludge Thickening	OCSD	$137,115,600	$1,000,000	$0	$138,115,600
Vireo Monitoring	SAWA	$269,207	$600,000	$0	$869,207
Mill Creek Wetlands	City of Ontario	$14,355,000	$1,000,000	$5,000,000	$20,355,000
Cactus Basin	SBCFCD	$8,250,752	$1,000,000	$0	$9,250,752
Inland Empire Brine Line Rehabilitation and Enhancement	SAWPA	$698,153	$1,000,000	$5,234,576	$6,932,729
Arlington Desalter Interconnection Project	City of Corona	$948,049	$400,000	$0	$1,348,049
Perris II Desalination Facility	EMWD	$1,335,752	$1,000,000	$0	$2,335,752
Perchlorate Wellhead Treatment System Pipelines	WVWD	$419,000	$1,000,000	$0	$1,419,000
Chino Creek Wellfield	WMWD	$5,331,118	$1,000,000	$0	$6,331,118
Impaired Groundwater Recovery	IRWD	$36,321,970	$1,000,000	$0	$37,321,970
Alamitos Barrier Improvement Project	OCWD	$10,571,600	$1,000,000	$0	$11,571,600
Arlington Basin Water Quality Improvement Project	WMWD	$3,443,636	$1,000,000	$0	$4,443,636
Grant Total		$233,459,517	$12,000,000	$10,234,576	$256,354,097

- Reduces water demand by 11,200 AF/YR
- Captures 16,300 AFY of stormwater for recharge
- Produces 28,600 AFY of desalted groundwater while removing 21,600 tons of salt
- Creates 90,400 AFY of new water recycling
- Creates 16,400 AF of new storage
- Improves water quality to 7,800 AFY
- Creates or restores 400 acres of habitat
- Leverages $11.7 million in grants funds with $240 million on local funds
- Creates about 3900 construction related jobs for region