



Mojave Region Functionally Equivalent Storm Water Resources Plan

Oct. 2017, Rev. Apr 2019, Jan 2020



*Prepared for Mojave Water Agency and
San Bernardino County Department of Public Works*

Kennedy/Jenks Consultants

Kennedy/Jenks Consultants

2775 N. Ventura Road, Suite 100
Oxnard, CA 93036
805-973-5700
FAX: 805-973-1440

Mojave Region Functionally Equivalent Storm Water Resource Plan

Revised 28 January 2020

Prepared for
Mojave Water Agency
22450 Headquarters Drive
Apple Valley, CA 92345

K/J Project No. 1644216*00

Table of Contents

<i>List of Tables</i>	<i>iii</i>
<i>List of Figures</i>	<i>iii</i>
<i>List of Appendices</i>	<i>iii</i>
<i>List of Acronyms</i>	<i>iv</i>
Section 1: Introduction and Plan Development	1-1
1.1 Plan Development	1-1
1.2 Plan Organization	1-6
1.3 SWRP Consistency with Adjudications	1-7
1.4 SWRP and IRWMP Objectives	1-7
Section 2: Watershed Identification.....	2-1
2.1 Watershed	2-1
2.2 Land Use	2-3
2.3 Internal Boundaries	2-6
2.4 Groundwater Basins.....	2-7
2.4.1 Mojave River Groundwater Basin	2-7
2.4.2 Morongo Basin/Johnson Valley Area	2-10
2.4.3 Adjudications.....	2-10
2.4.3.1 Mojave Basin Area.....	2-12
2.4.3.2 Warren Valley Basin	2-13
2.5 General Water Quality.....	2-13
2.5.1 Surface Water Quality	2-13
2.5.2 Groundwater Quality	2-16
2.5.2.1 Naturally Occurring Contamination	2-16
2.5.2.2 Human Caused Contamination.....	2-16
2.6 Overview of Water Supplies	2-17
2.6.1 Retail Water Purveyors	2-17
2.7 Ecological Processes and Environmental Resources	2-18
2.7.1.1 Parks, Reserves and Wilderness Areas	2-23
Section 3: Water Quality Compliance.....	3-1
3.1 Activities that Impair the Beneficial Use of Storm Water	3-1
3.2 Activities Associated with Pollution of Storm Water and/or Dry Weather Runoff	3-1
3.3 NPDES and TMDL Compliance	3-3
3.3.1 Mojave River Watershed MS4 Phase II Storm Water Permit	3-3
3.3.2 Construction, Industrial, and Utility Activities	3-4

3.4	Other Permits	3-6
3.5	Plan Relationship to Waste Discharge Requirements.....	3-6
Section 4:	Organization, Coordination, Collaboration	4-1
4.1	Coordination with MS4 Permittees	4-1
4.2	Mojave IRWMP Regional Water Management Group.....	4-1
4.3	Stakeholder Involvement.....	4-2
4.4	Methods of Community Outreach.....	4-5
Section 5:	Identification and Prioritization of Projects	5-1
5.1	Project Identification	5-1
5.2	Screening of Projects	5-7
5.3	Project Opportunities.....	5-8
5.4	Project Prioritization	5-13
Section 6:	Implementation Strategy	6-1
6.1	Outreach and Coordination	6-1
6.2	Decision Support Tools	6-2
6.3	Responsibility for Implementation	6-2
6.4	Schedule for Implementation.....	6-2
6.5	Funding for Implementation.....	6-3
6.5.1	Local.....	6-3
6.5.1.1	Capital Improvements Program Funding (Revenue Bonds, Certificates of Participation)	6-3
6.5.1.2	Property Tax Assessment (Assessed Valuation).....	6-3
6.5.1.3	User Fees	6-3
6.5.2	State.....	6-4
6.5.2.1	Proposition 1	6-4
6.5.2.2	Department of Water Resources – Sustainable Groundwater Planning (SGWP) Grant Program	6-4
6.5.2.3	Department of Water Resources – IRWMP Grant Program	6-4
6.5.2.4	State Water Resources Control Board – Storm Water Grant Program	6-5
6.5.2.5	California Natural Resources Agency – California Urban Rivers Grant Program	6-5
6.5.3	Other	6-5
6.5.3.1	Department of Water Resources - Flood Control Subventions Program.....	6-5
6.5.3.2	California Infrastructure and Economic Development Bank - Infrastructure State Revolving Fund.....	6-6
6.5.4	Federal.....	6-6

6.5.4.1	US Bureau of Reclamation - WaterSMART Grant Programs	6-6
6.5.4.2	Federal Emergency Management Agency – Hazard Mitigation Grant Program	6-6
Section 7: References.....		7-1

List of Tables

Table 1-1	Summary of Mojave Region IRWMP Objectives	1-8
Table 2-1	Snapshot of the Mojave Region	2-3
Table 2-2	MWA Service Area Land Use Distributions	2-6
Table 2-3	DWR Groundwater Basins	2-9
Table 2-4	Water Quality Objectives for Waters in the Mojave River Watershed	2-14
Table 2-5	Sensitive Species in the Mojave Region	2-19
Table 2-6	Areas of Critical Environmental Concern in Mojave Area	2-20
Table 3-1	303(d) List of Impaired Water Bodies in the Mojave River Watershed	3-3
Table 3-2	Applicable NPDES Permits Issued by the Lahontan and Colorado River RWQCBs	3-5
Table 4-1	Mojave IRWMP Stakeholders	4-3
Table 5-1	Identified Storm Water Projects	5-3
Table 5-2	Results of SWRP Project Prioritization	5-16

List of Figures

Figure 1-1	Mojave Region	1-2
Figure 1-2	Mojave Region Regional Board Boundaries	1-3
Figure 1-3	Mojave Region Adjudicated Areas	1-8
Figure 2-1	Mojave Region Hydrologic Setting	2-2
Figure 2-2	Land Use	2-4
Figure 2-3	Critical Habitat Areas and Wildlife Corridors	2-5
Figure 2-4	Mojave Region Groundwater Basins	2-8
Figure 2-5	Moronga Area Groundwater Basins	2-11
Figure 2-6	Mojave River Reaches	2-15
Figure 5-1	Publicly Owned Parcels Suitable for Storm Water Management	5-12

List of Appendices

- A Storm Water Resource Plan Checklist and Self-Certification
- B Applicable Active NPDES Permittee List for Lahontan and Colorado River RWQCBs
- C Mojave Region Storm Water Resource Plan Projects

List of Acronyms

µg/L	micrograms per liter
ACEC	Areas of Critical Environmental Concern
AF	acre feet
AFY	acre-feet per year
BAP	Base Annual Production
BDVWA	Bighorn-Desert View Water Agency
BMP	Best Management Practices
CDFW	California Department of Fish and Wildlife
cfs	cubic feet per second
CLAWA	Crestline-Lake Arrowhead Water Agency
Colorado River RWQCB	Colorado River Regional Water Quality Control Board
CSA	County Service Area
CSD	Community Services District
CWA	Federal Clean Water Act
DAC	Disadvantaged Community
DWR	California Department of Water Resources
EPA	Environmental Protection Agency
FPA	Free Production Allowance
gpm	gallons per minute
HDWD	Hi-Desert Water District
IDGM	Improvement District Goat Mountain
IRWMP	Integrated Regional Water Management Plan
JBWD	Joshua Basin Water District
Lahontan RWQCB	Lahontan Regional Water Quality Control Board
MCL	Maximum Contaminant Level
mg/l	milligrams per liter
MOU	Memorandum of Understanding
MRWG	Mojave River Watershed Group
MS4	municipal separate storm sewer systems
MWA	Mojave Water Agency
NPDES	National Pollutant Discharge Elimination System
PCBs	Polychlorinated biphenyls
POTW	publicly owned treatment works
ppb	parts per billion
RCBs	reinforced concrete box
RM	River Mile
RWMG	Regional Water Management Group

SB	Senate Bill
SBC	San Bernardino County
SBCFCD	San Bernardino County Flood Control District
SGP	Sustainable Groundwater Planning
SNMP	Salt and Nutrient Management Plan
SWGP	Storm Water Grant Program
SWMP	Stormwater Management Program for the Mojave River Watershed
SWP	State Water Project
SWRCB	State Water Resources Control Board
SWRP	Storm Water Resource Plan
TAC	Technical Advisory Committee
TDS	total dissolved solids
TIN	total inorganic nitrogen
TMDL	Total Maximum Daily Load
USGS	US Geological Survey
WDRs	Waste Discharge Requirements

Section 1: Introduction and Plan Development

The State of California now recognizes the importance of incorporating storm water as a potential resource in a region's water portfolio. Historically, storm water was thought of as a public risk (e.g., flooding) and a source of water quality impairment. Traditional approaches for storm water focused on diverting storm water into the storm drain system which ultimately and efficiently moved said water away from populated areas; the State is now supporting watershed-based approaches where storm water and dry weather runoff can yield benefits beyond flood control, such as water supply, water quality improvement, and habitat enhancement. To incentivize use of storm water, the State of California has linked storm water resources planning to state funding. Storm water and dry weather runoff capture projects seeking funding from any California bond act approved by voters after January 1, 2014 must be included in a Storm Water Resources Plan, which meets California Water Code.

Regional water planning has a long history in the Mojave region. In 2005, agencies in the Mojave service area, that share a common concern for the area's water resources, met and agreed to develop an Integrated Regional Water Management Plan (IRWMP). The Region's first IRWMP identified, defined, and established strategies to capitalize on all water management opportunities that were present at that time or would become possible in the Mojave Region in the future. Since that time the IRWMP has acted as a forum for regular collaboration. The IRWMP is a living document and the regional objectives as well as strategies to improvement water management are regularly updated. The IRWMP was last updated in 2014.

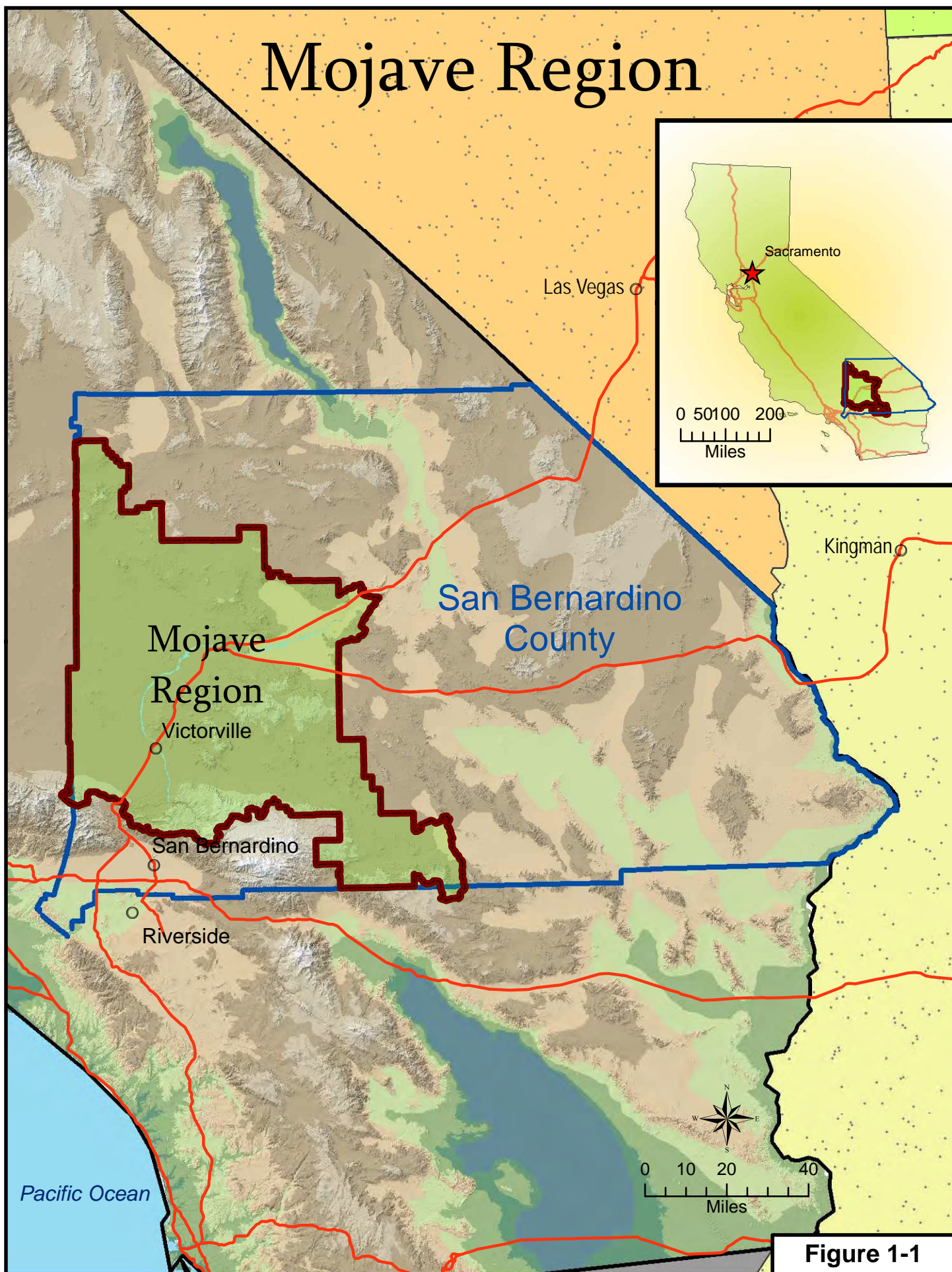
This Mojave Region Storm Water Resource Plan (SWRP) is an extension of the IRWMP process and is meant to bring an integrated and watershed-based approach to managing and creating benefits from storm water. This SWRP is regional and multi-agency. This SWRP includes all components required by the Water Code and will be submitted to the IRWM group. This SWRP will help entities in the Mojave Region identify, prioritize, and implement storm water projects.

1.1 Plan Development

This document serves as the Mojave Area Storm Water Resource Plan (Mojave SWRP). The geographic area covered by this plan is coincident with the Mojave Integrated Regional Water Management Plan (IRWMP) Area (see Figure 1-1, see section 2 for the region description).

The Mojave SWRP is intended to be consistent with existing planning documents for the region, and as such will adopt and/or align with methodologies and strategies presented in the various plans where appropriate. Consistency with the Mojave Basin Adjudication, the Mojave Area IRWMP and other planning documents is expected to increase efficiency and effectiveness of the Mojave SWRP planning and implementation effort. The geographic area for this SWRP is divided between the Colorado River Basin Regional Water Quality Control Board (Colorado River RWQCB) and the Lahontan Regional Water Quality Control Board (Lahontan RWQCB), (see Figure 1-2) and this SWRP will also be consistent with applicable documents and regulations from the two Regional Water Quality Control Boards (Regional Water Boards). The Mojave SWRP was developed in accordance with the SWRP Guidelines and is structured based on the *Appendix A: Checklist and Self-Certification* form (State Water Board 2015).

Mojave Region



Mojave Region Regional Board Boundaries

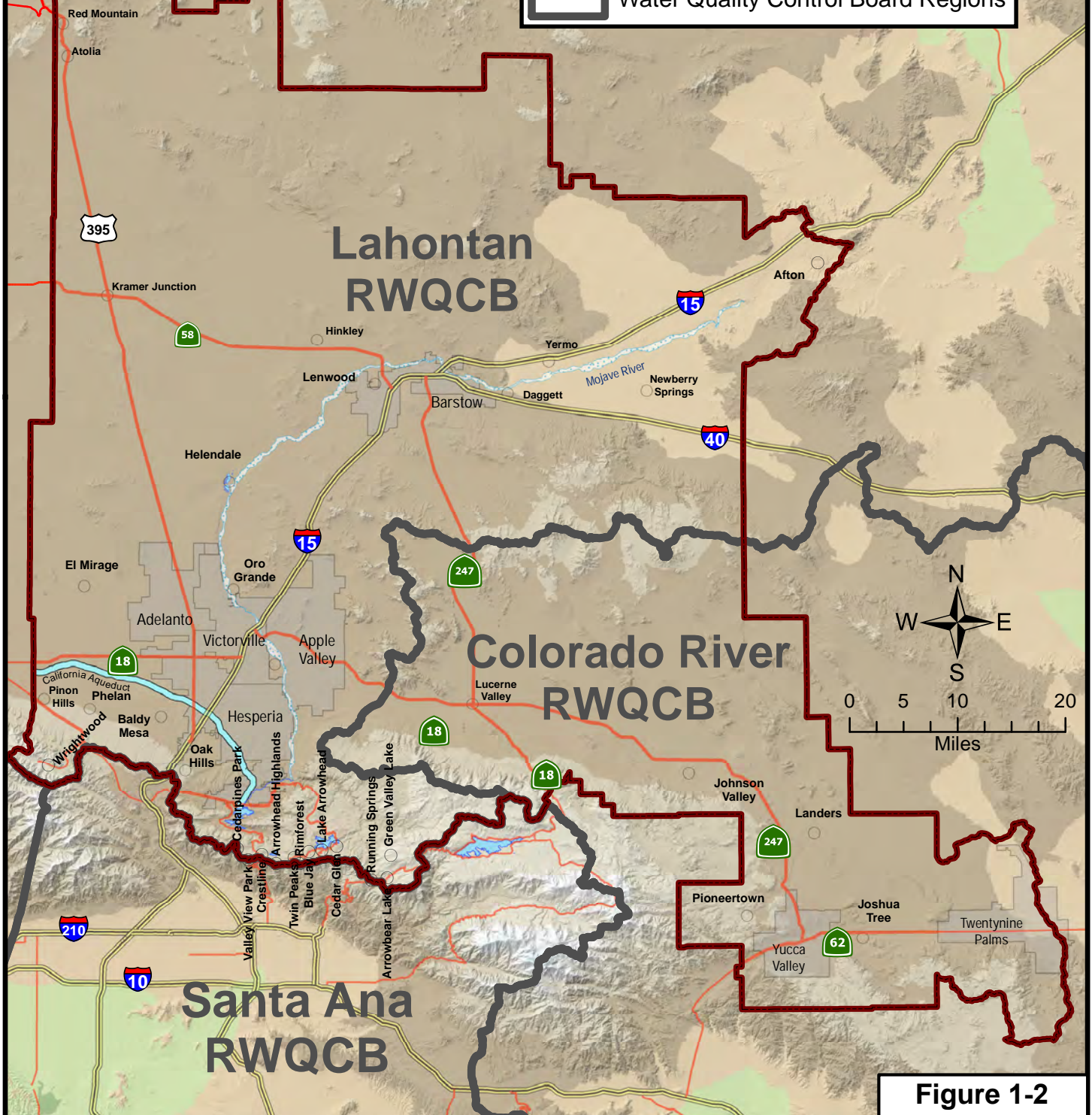
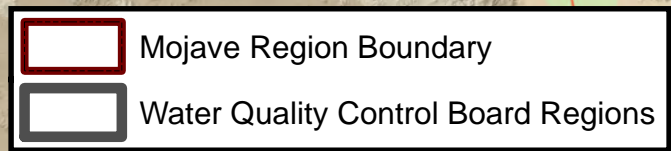


Figure 1-2

This SWRP relies on data from a collection of existing documents:

- Final Mojave Integrated Regional Water Management Plan. The plan was prepared in coordination between Victor Valley Wastewater Reclamation Authority, Mojave Desert Resource Conservation District, Morongo Basin Pipeline Commission, Mojave Water Agency (MWA), and the MWA Technical Advisory Committee (TAC)¹. The IRWMP was last updated in 2014 and can be accessed at: http://www.mywaterplan.com/files/mojave_irwm-plan_final_62614.pdf. This is referenced as “MWA 2014” in this report.
- The IRWMP also includes the Salt and Nutrient Management Plan (SNMP). The Mojave SNMP was developed in a collaborative setting with input from a wide array of stakeholders through a series of meetings and workshops and included specific coordination with the Lahontan and Colorado River Regional Water Quality Control Boards. The Salt and Nutrient Management Plan was last updated in December 2015 and can be accessed here: <https://www.mojavewater.org/snm-plan.html>. This is referenced as the Mojave SNMP in this report.
- Mojave River Watershed Storm Water Management Program. This report was prepared by the Town of Apple Valley, the City of Hesperia, the City of Victorville, and the County of San Bernardino Department of Public Works. The plan was completed in August of 2003 and can be accessed at: http://www.waterboards.ca.gov/water_issues/programs/stormwater/swmp/mojave_swmp.pdf. This is referenced as the “2003 Storm Water Plan” in this report.
- Mojave Basin Area Judgement. Judgement After Trial, *City of Barstow et al. vs. City of Adelanto et al. Superior Court Case No 208568, Riverside County*. The Adjudication of the Mojave Basin Area was the legal process that allocated the right to produce water from the Mojave River Groundwater Basin. The Adjudication includes an injunction against diverting storm water away from downstream users of the Mojave River and prohibits any projects that could reduce the amount of storm water flow that would otherwise go through the naturally occurring hydrologic regime to a downstream user. The Adjudication also prohibits any project that alters the bed of the Mojave River or which reduces the surface area over which storm water flows. The Adjudication does not prevent agencies from taking emergency action as necessary to protect the physical safety of residents and structures, but any such action must minimize any reduction in the quantity of storm water flow. The Adjudication can be accessed at: <https://www.mojavewater.org/files/judgment.pdf>. This is referred to as the “Mojave Basin Adjudication” in this report.
- Water Quality Control Plan for the Lahontan Region. The plan was prepared by the Lahontan RWQCB and was last updated September 2015. The Water Quality Control Plan can be accessed at:

¹ The Technical Advisory Committee to the Mojave Water Agency (TAC) is an independent, voluntary group of water purveyors, pumpers, and other interested parties located within MWA’s service area boundaries. The TAC serves as the advisory panel for MWA and provides critical input, including helping to define key issues related to potential water management activities in the Region. The TAC provides a forum for information sharing and discussion of water management issues and solutions. The TAC meets bi-monthly in a public forum.

http://www.waterboards.ca.gov/lahtontan/water_issues/programs/basin_plan/references.shtml. This is referenced as “Lahontan RWQCB 2015” in this report.

- Water Quality Control Plan for the Colorado River Basin Region. The plan was prepared by the Colorado River RWQCB and was last updated March 2014. The Water Quality Control Plan can be accessed at: http://www.waterboards.ca.gov/coloradoriver/water_issues/programs/basin_planning/. This is referenced as “Colorado River RWQCB 2014” in this report.
- Mojave River Watershed Group Small Municipal Separate Storm Sewer System General Permit Waste Discharge (MS4 Phase II Permit). This report on compliance activities is prepared by the City of Barstow, Town of Apple Valley, the City of Hesperia, the City of Victorville, and the County of San Bernardino. The most recent report is dated October 2014 and can be accessed at: <http://www.mojaveriver.org/files/managed/Document/174/14-10-15%20MRWG%20Annual%20Report%20Final.pdf>. The SMARTS database (Storm Water Multiple Application and Report Tracking System, located at smarts.waterboards.ca.gov) contains the most current permitting related data. This is referred to as the “Mojave River Watershed Group Permit Report 2014” in this plan.
- Mojave River Watershed Technical Guidance Document for Water Quality Management Plans. This document is an extension of the MS4 Phase II Permit. The MS4 Phase II Permit requires all new development and significant redevelopment projects (as defined by the California Regional Water Resources Control Board) to incorporate low Impact development best management practices to the maximum extent practicable as well as development of standard design and post-development best management practices as part of the building permit and grading permit processes. The jurisdictions participating in the Mojave River Watershed MS4 Phase II Permit require project proponents to assess site conditions determine pollutants of concern (based on the land use impacted and downstream receiving bodies), determine hydromodification impacts, and then develop site design using preventative low impact site design principles, and to establish specific hydromodification performance criteria.

This SWRP document provides information from these reports and updates information where appropriate. In addition to the existing documents and studies, this plan involved extensive outreach. Outreach was undertaken to water agencies, wastewater agencies, local chamber of commerce, resource agencies, community service districts, local cities, and the San Bernardino County (SBC) Department of Public Works. These outreach meetings are summarized below and a list of stakeholders/participants is provided in section 4.3:

- June 2, 2016. Introduced the SWRP and took input on the content of the plan (44 attendees).
- October 6, 2016. Reviewed draft SWRP objectives, introduced ‘call for projects’ (40 attendees).
- April 6, 2017. Reviewed screening and prioritization criteria (33 attendees).
- April 25, 2017. Met with representatives from San Bernardino County Flood Control District (SBCFCD), City of Hesperia, and MWA to go over specific project proposals and to review opportunities for collaboration (8 attendees).

- June 1, 2017. Reviewed submitted projects, reviewed project scoring. Took ideas from meeting participants to identify opportunities for collaboration/multi-benefit projects (32 attendees).
- June 1, 2017. Met with representatives from SBCFCD, City of Barstow, Town of Apple Valley, Phelan Piñon Hills Community Services District, City of Victorville, and MWA to go over specific project proposals and to review opportunities for collaboration (9 attendees).

This collection of documents and outreach efforts as a whole meet all the requirements of Water Code Section 10560 et seq. Appendix A contains the *Storm Water Resource Plan Checklist and Self-Certification* documenting how this SWRP complies with the State Water Resources Control Board *Storm Water Resource Plan Guidelines*.

1.2 Plan Organization

This Mojave SWRP contains the following sections as outlined below:

- Section 1 – Introduction and Plan Development: provides an overview of the document and identifies the storm water management objectives of this SWRP.
- Section 2 – Watershed Identification: identifies the SWRP boundary and watersheds within the SWRP Region.
- Section 3 – Water Quality Compliance: identifies water quality issues within the major watersheds, including pollutants identified on the 303(d) list of impaired water bodies or with relevant Total Maximum Daily Loads (TMDLs). This section also includes discussion of the SWRP in relation to applicable TMDL Implementation Plans (IPs) and municipal separate storm sewer system (MS4) Permits.
- Section 4 - Organization, Coordination, and Collaboration: describes the community engagement process that occurred during plan development, including identification of stakeholders, an overview of the existing Mojave IRWM group, and the mechanisms used to engage stakeholders and the public in plan development.
- Section 5 - Identification and Prioritization of Projects: includes a list of previously identified projects, the process of site selection and development of SWRP projects, conceptual designs for each SWRP project, the methodology and results for quantification of water supply and water quality benefits of proposed projects, and prioritization of both SWRP and previously identified projects.
- Section 6 - Implementation Strategy: outlines programs to assist in implementation of strategies identified in this SWRP, including funding. This section also discusses how current monitoring required by the MS4 Permits will be utilized as part of the adaptive management process.

1.3 SWRP Consistency with Adjudications

Adjudications in the Mojave Region affect the use of storm water. Two major groundwater basins in the Mojave Region are adjudicated and others are managed according to court-approved agreements, as described in Section 2.6.2.3 (page 2-32) of the IRWMP (also see Figure 1-3). Specifically, the Mojave Basin Adjudication has an injunction against diverting storm flows. The Adjudication states:

“Injunction Against Diverting Storm Flows. No Party may undertake or cause the construction of any project that will directly reduce the amount of Storm Flow that would otherwise go through naturally occurring hydrologic regime to a downstream Subarea or that will reduce the surface area over which Storm Flow currently occurs by alteration to the bed of the Mojave River. This paragraph shall not prevent any flood control agency or municipality from taking such emergency action as may be necessary to protect the physical safety of its residents and its structures from flooding. Any such action shall be done in a manner that will minimize any reduction in the quantity of Storm Flows.”

1.4 SWRP and IRWMP Objectives

Like the IRWMP, this SWRP is meant to bring an integrated and watershed-based approach to managing and creating benefits from storm water. This SWRP is regional and multi-agency. This SWRP includes all components required by the Water Code and will be submitted to the IRWM group. This SWRP will help entities in the Mojave Region identify, prioritize, and implement storm water projects.

This SWRP must be consistent with the broader water management goals of the Mojave IRWMP. The Mojave IRWMP was developed based on the *Integrated Regional Water Management Guidelines for Proposition 84 and 1E* and includes fourteen objectives related to water management (collectively termed “IRWMP benefits” herein), as described in Section 4 (page 4-1 to 4-24; MWA 2014). The IRWMP objectives are provided in Table 1-1 below. The Mojave IRWMP objectives were developed based on the key issues facing the Mojave Region, as identified through substantial collaboration and collective interaction among participating stakeholders to the IRWMP. As such, the objectives reflect the overall priorities for the Mojave Region and were considered in development of this SWRP.

Mojave Region Adjudicated Areas

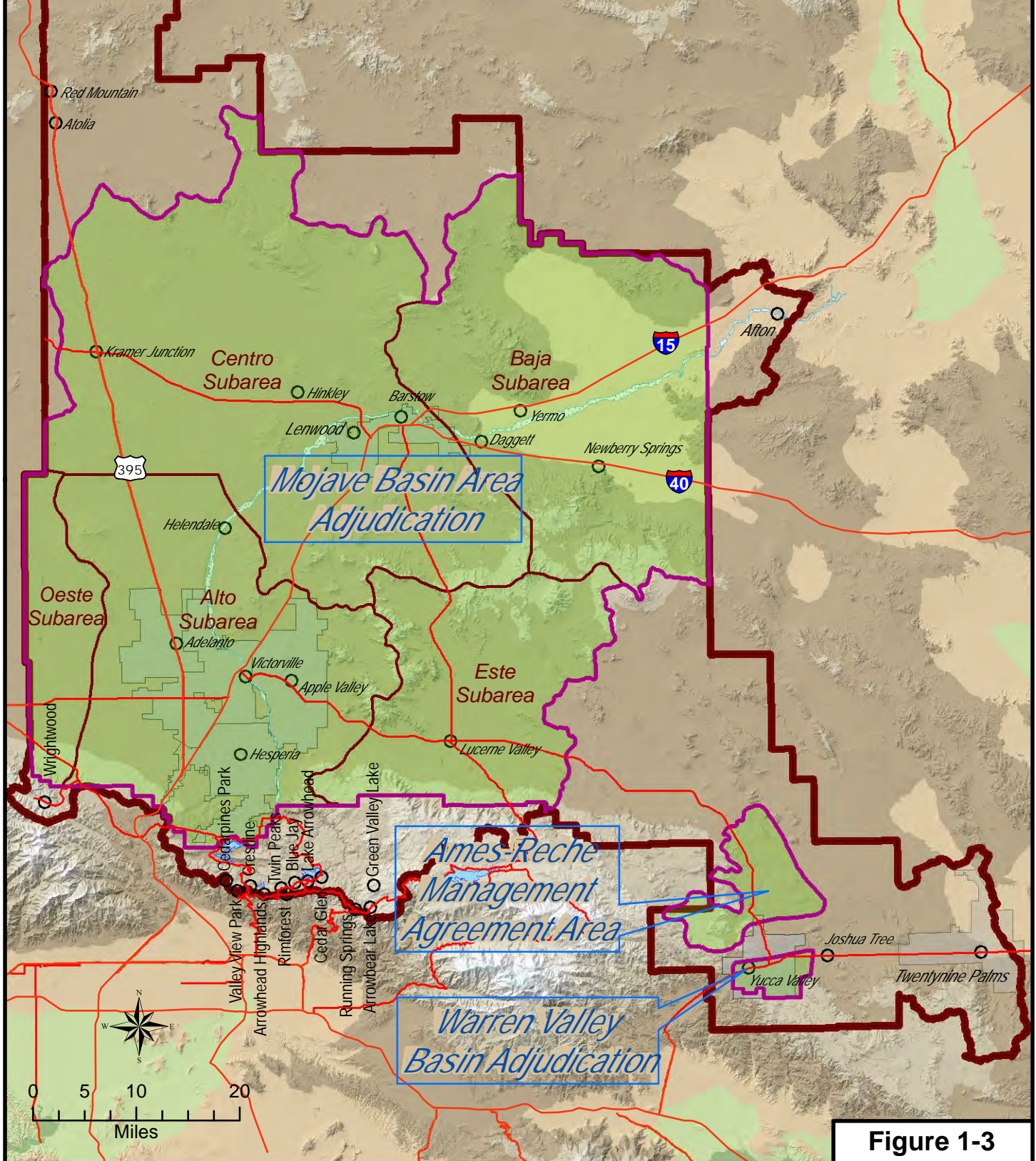


Figure 1-3

Table 1-1
Summary of Mojave Region IRWMP Objectives

Summary of Objective	Title of Objective	Importance ^(a)	Urgency ^(b)
1. Balance average annual future water demands with available future supplies to ensure sustainability throughout the Region between now and the 2035 planning horizon and beyond.	<i>Balance future water demands</i>	High	High
2. Continue improving regional water use efficiency by implementing a portfolio of conservation actions that are regionally cost-effective.	<i>Improving regional water use efficiency</i>	High	Medium
3. Maintain stability in previously overdrafted groundwater basins and reduce overdraft in groundwater basins experiencing ongoing water table declines.	<i>Maintain stability in overdrafted groundwater basins</i>	High	High
4. Address the State policy goal of reducing reliance on the Delta by meeting water demands with alternative sources of supply during times when State Water Project (SWP) supplies are reduced or unavailable due to droughts, outages, environmental and regulatory restrictions, or other reasons.	<i>Reduce reliance on Delta</i>	High	Medium
5. Optimize the use of the Region's water-related assets to maximize available supplies to meet projected demands while mitigating against risks. Water-related assets to be optimized include financial resources, groundwater storage programs, available imported water supplies, transfer and exchange opportunities, available physical infrastructure, and management policies.	<i>Optimize Region's water-related assets</i>	High	Medium
6. Prevent land subsidence throughout the Region.	<i>Prevent land subsidence</i>	Low	Low
7. Provide support and assistance to disadvantaged communities and help facilitate projects and programs that benefit those communities.	<i>Support to DACs</i>	High	High
8. Improve environmental stewardship related to waterways and water management in the Region.	<i>Improve environmental stewardship</i>	High	Medium
9. Improve floodplain management throughout the Plan area.	<i>Improve floodplain management</i>	High	Medium

Summary of Objective	Title of Objective	Importance ^(a)	Urgency ^(b)
10. Preserve water quality as it relates to local beneficial uses of water supplied by each source, including groundwater, storm water, surface water, imported water, and recycled water.	<i>Preserve water quality</i>	High	Medium
11. Obtain financial assistance from outside sources to help implement this Plan across a range of project sizes during the planning horizon.	<i>Obtain financial assistance</i>	High	Medium
12. Improve public awareness of water supply, conservation, water quality, and environmental stewardship challenges and opportunities throughout the planning horizon.	<i>Improve public awareness</i>	High	Medium
13. Identify and establish reliable funding sources to maintain, modernize and improve water infrastructure to ensure a high quality, resilient and reliable water supply.	<i>Establish reliable funding sources</i>	Medium	Medium
14. Increase the use of recycled water in the Region while maintaining compliance with the Mojave Basin Area Judgment as applicable.	<i>Increase use of recycled water</i>	Medium	Medium

Notes:

(a) The “importance” assigned to each objective reflects the significance or consequence to the Region of satisfying this objective compared with other objectives.

(b) The “urgency” assigned to each objective reflects the degree to which this objective warrants speedy attention or action compared with other objectives.

As can be seen in Table 1-1, the specific IRWMP goals related to storm water include “Improve environmental stewardship”, “Improve floodplain management throughout the Plan area” and “Preserve water quality as it relates to local beneficial uses of water supplied by each source, including groundwater, storm water, surface water, imported water and recycled water”.

Objectives of this SWRP were developed keeping in mind the IRWMP objectives and the restrictions on storm water diversions in Mojave Basin Area Judgement. As developed in coordination with the TAC, the objectives of this SWRP are:

- Further beneficial use of storm water
- Be consistent with water quality control plans and permits (NPDES, Waste Discharge Requirements) and applicable judgements and adjudications
- Be consistent with Pest and Mosquito Abatement Law
- Be consistent with Mojave IRWMP Goals and Objectives

Section 2: Watershed Identification

Details on the Mojave Region and its choice as a watershed for storm water resources planning can be found in the 2014 IRWMP Sections 2.1 to 2.6, pages 2-1 to 2-26.

2.1 Watershed

The Mojave Region as defined in the 2014 IRWMP is the planning area for the Mojave SWRP. The Mojave Region was originally defined by the MWA service area boundaries, but was expanded during the 2014 IRWMP update process to better represent the Mojave River Watershed, as defined by the California Interagency Watershed Mapping Committee (CalWater)². The hydrogeologic setting of the Mojave Region, including CalWater watershed boundaries, is presented on Figure 2-1. Additional details on the history of the Mojave Region boundaries is found in Section 1.1.1 (pages 1-1 to 1-2) of the 2014 IRWMP.

The Mojave Region is a hydrologically diverse area covering over 5,400 square miles in the California High Desert – part of the Mojave Desert, in San Bernardino County. The Region includes portions of both the South Lahontan and Colorado River Hydrologic Regions, as defined by the California Department of Water Resources (DWR) *Draft California Water Plan, Bulletin 160* (DWR 2013). The Mojave Region is divided into two major surface water drainage areas, the Mojave River Area and the Morongo Basin/Johnson Valley Area.

The Mojave River Area makes up the larger of the Region's two major surface water drainage features and drains an area of 3,800 square miles. The Mojave River is fed by rainfall and snow pack from the San Bernardino Mountains. The River is formed by the confluence of two smaller streams at the northern foot of the mountains, in the southern portion of the Mojave Region. From there, the River runs north and northeastward for about 100 miles, through the City of Victorville, City of Barstow, and eventually through Afton Canyon. At present the Mojave River is perennial only along few sections that are fed by groundwater in dry periods, but the River flows along several of its reaches during and immediately after storms.

The Morongo Basin/Johnson Valley Area is the Region's smaller drainage area (approximately 1,000 square miles) and consists primarily of small ephemeral streams that percolate into the stream bed, or drain into local terminal dry lakes after large storm events (MWA 2014).

A "snap-shot" of the Mojave Region is presented in Table 2-1 below.

² CalWater version 2.2.1 also cross-references watershed codes implemented by the California Department of Water Resources, the California State Water Resources Control Board and Regional Water Quality Control Boards, as well as Hydrologic Unit Codes published by USGS for California and the nation. Standardized watershed delineations, codes, and names from both state and federal systems are used primarily to map, analyze, and document water resources and water quality information and regulations.

Mojave Region

USGS Surface Water Gaging Stations

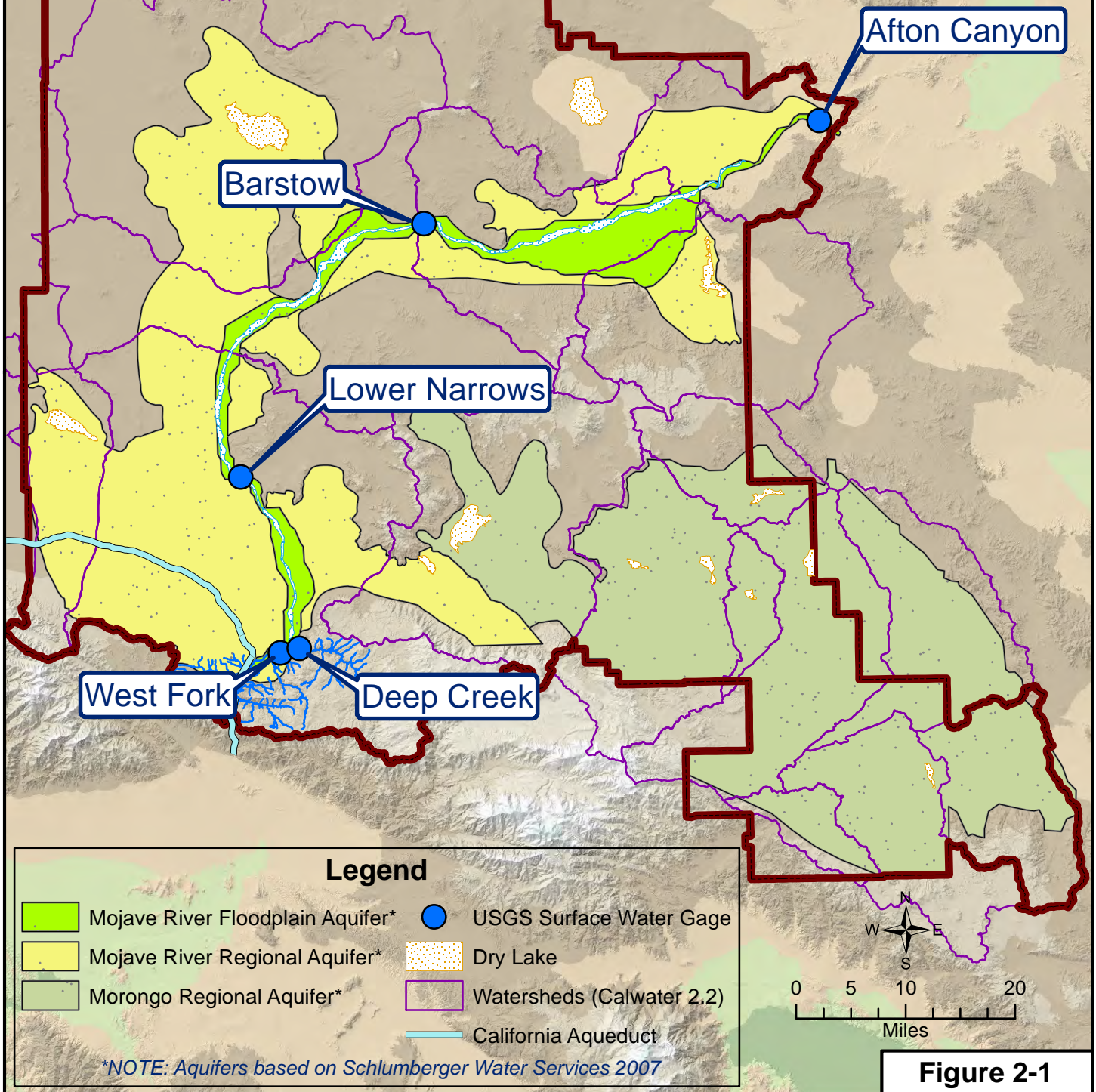


Figure 2-1

**Table 2-1
Snapshot of the Mojave Region**

Feature	Mojave Region	Source
Size	>5,400 square miles	Section 1.1.2 on page 1-2 of the IRWMP (MWA 2014)
Region	California High Desert in San Bernardino County	Section 1.1.2 on page 1-2 of the IRWMP (MWA 2014)
Hydrologic Regions	South Lahontan Hydrologic Region and Colorado River Hydrologic Region	DWR Draft California Water Plan, Bulletin 160 (DWR 2013)
CalWater Watershed Unit	Between a Hydrologic Unit and a Hydrologic Region	Storm Water Resource Plan Guidelines (State Water Board 2015)
RWQCB	Lahontan RWB and Colorado River RWCQB	Figure 1-2 (Figure 3-3 on page 3-20 of the IRWMP; MWA 2014)

2.2 Land Use

Table 2-2 (Table 2-1, page 2-4 in the IRWMP; MWA 2014) summarizes the land use distribution in the MWA service area, which is approximately 5,000 square miles of the Mojave Region. As presented in Table 2-2, 94.4 percent of the MWA service area is either public facilities or single-family residential and only approximately 6 percent of that area is developed. The Mojave Region is similar, as presented in Figure 2-2 (Figure 2-3, page 2-6 of the IRWMP; MWA 2014); most of the Mojave Region is single-family residential or public land, and therefore the Mojave Region is largely undeveloped. In the limited areas of development, the natural watershed processes have been disrupted due to urbanization. Critical habitat designated areas and wildlife corridors in the Mojave Region are presented on Figure 2-3 (Figure 2-4, page 2-11 of the IRWMP; MWA 2014).

Mojave Region Land Use

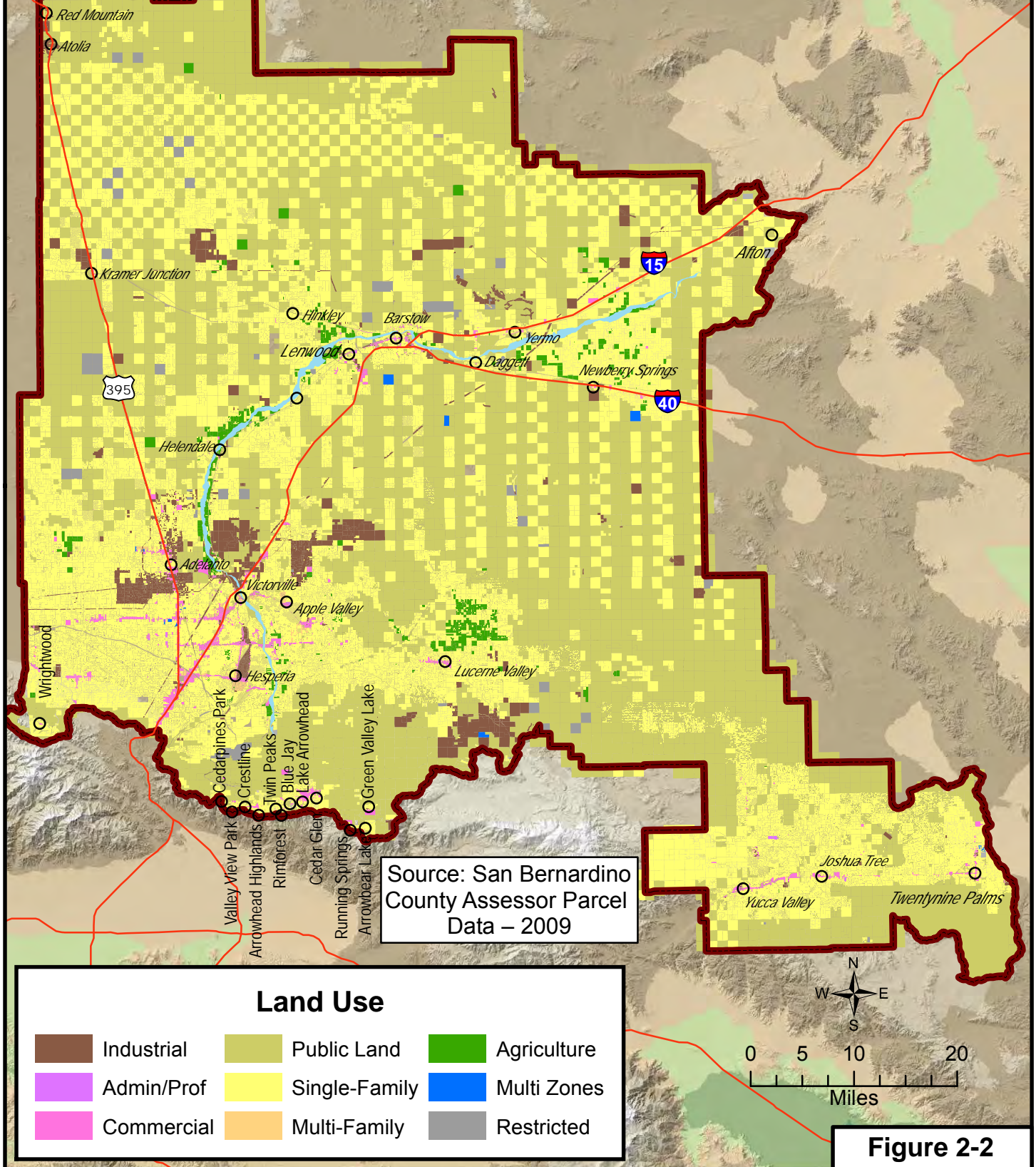


Figure 2-2

Mojave Region Wildlife Corridors

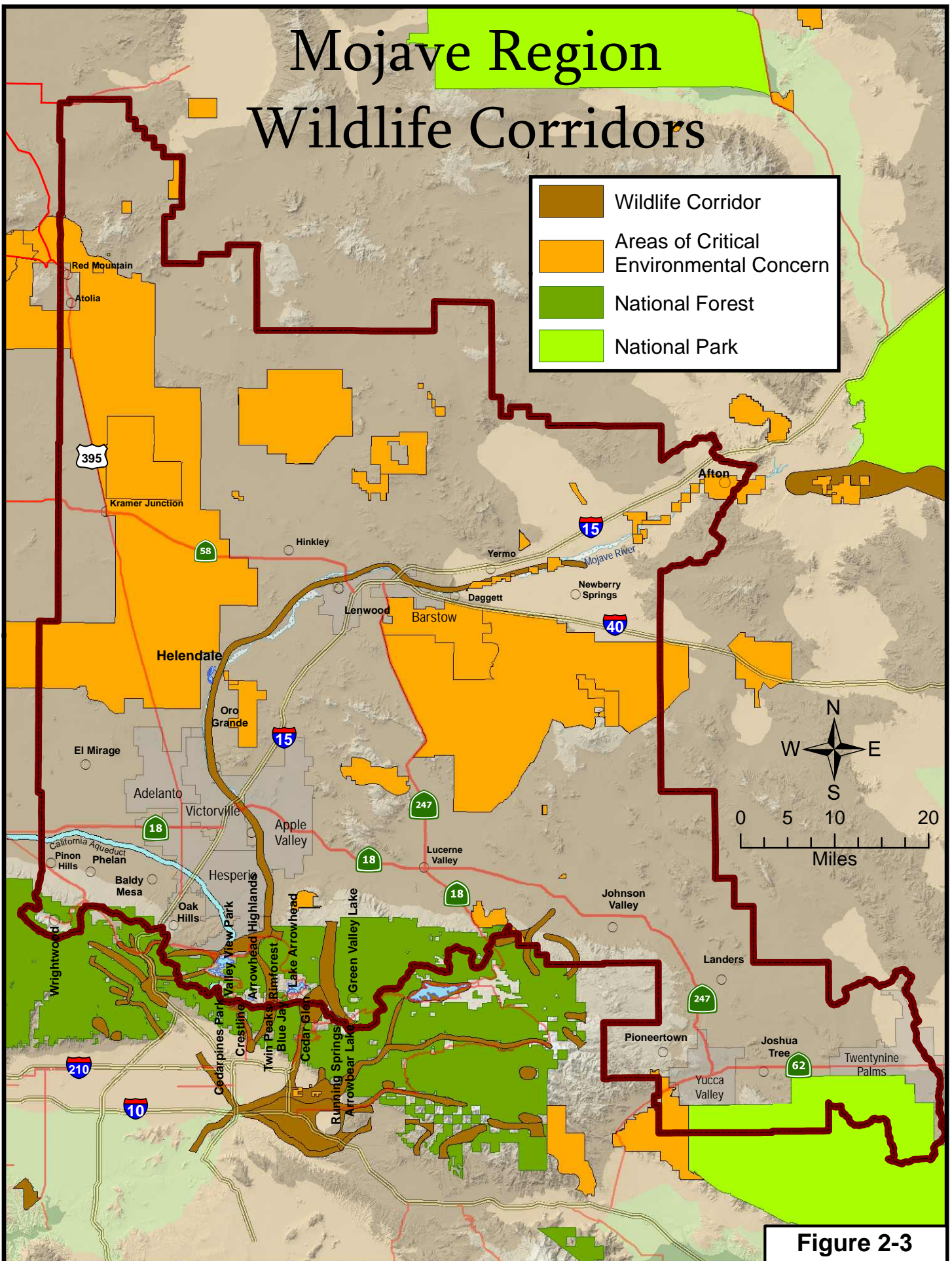


Figure 2-3

Table 2-2
MWA Service Area Land Use Distributions

Land Use	Total Acreage	Percent of Total	Acreage Developed	Percent Developed
Public Facilities	1,706,198	53.5%	962	0.1%
Single-Family Residential	1,300,967	40.8%	186,329	14.3%
<i>Public Facilities and Single-Family Residential</i>	<i>3,007,165</i>	<i>94.4%</i>	<i>187,291</i>	<i>6.2%</i>
Industrial	82,891	2.6%	7,824	9.4%
Agricultural	40,461	1.3%	18,499	45.7%
Restricted	27,862	0.9%	247	0.9%
Commercial	22,257	0.7%	6,252	28.1%
Multi-Family Residential	3,423	0.1%	1,457	42.6%
Multiple Zonings (a)	1,833	0.1%	685	37.4%
Administrative/Professional	586	0.0%	57	9.7%
Total	3,186,478	100.0%	222,312	7.0%

Source: From MWA 2014, citing San Bernardino County Assessor 2009

Notes:

(a) This type of use provides sites that have mixed zoning uses such as commercial and industrial.

(b) Acreage is in square miles.

(c) Percent developed is calculated by comparing acreage developed to total acreage, and therefore the sum of the percentages does not equal the total percent developed.

2.3 Internal Boundaries

There are currently 58 municipal water purveyors in the Mojave Region, including water districts, cities, mutual water companies, and community services districts. Six wastewater agencies serve residents and businesses within the Mojave Region and three wastewater agencies serving communities outside the Region discharge treated effluent to the Region. Municipal and county government agencies located within the Region include the Cities of Adelanto, Barstow, Hesperia, Twentynine Palms, Victorville, San Bernardino County, and the Towns of Apple Valley and Yucca Valley.

Detailed lists of stakeholders to the 2014 IRWMP, including municipalities, water, wastewater, and land use agencies, are provided in Section 4.

2.4 Groundwater Basins

In addition to major surface water features, the Region overlies portions or all of 36 local groundwater basins, as defined by DWR Bulletin 118-03 (see Figure 2-4 and Table 2-3). Collectively, these basins and subbasins are grouped into two larger hydrogeologically distinct areas. Basins along the Mojave River and adjacent areas are referred to as the Mojave River Groundwater Basin; the area is referred to as the Mojave Basin Area. Remaining basins in the southeastern Mojave Region are referred to as the Morongo Basin/Johnson Valley Area or “Morongo Area” with the exception of the Lucerne Valley. The Lucerne Valley subbasin splits along the Helendale Fault with the southwest portion in the Mojave River Groundwater Basin and the northeast portion in the Morongo Groundwater Basin. The surface water drainage of Lucerne Valley is in the Colorado River Region but is not included in the “Morongo Basin Area,” thus creating an “island effect” due to the hydrogeologic conditions.

The Mojave River Groundwater Basin is the larger and more developed of the two areas. Most of the Mojave River Groundwater Basin lies within the South Lahontan Hydrologic Region while the Morongo Area and a portion of the Este Subarea of the Morongo Groundwater Basin are in the Colorado River Hydrologic Region. The Mojave Region also overlaps a small portion of a DWR basin in the South Coast Hydrologic Region (Region 8) as shown by the last subbasin in Table 2-3 however, because this is such a small overlap, the Mojave Region is not involved with any jurisdictional issues with this groundwater basin.

2.4.1 Mojave River Groundwater Basin

The Mojave River Groundwater Basin, the largest in the Region, encompasses 1,400 square miles and has an estimated total water storage capacity of nearly 5 million acre-feet (AF) (MWA 2014 citing Bookman-Edmonston Engineering, Inc. 1994). The Mojave River Groundwater Basin Area is essentially a closed basin which means that very little groundwater enters or exits the basin. However, within the basin, groundwater moves between the different subareas; groundwater-surface water and groundwater-atmosphere interchanges also occur. Approximately 80 percent of the basin’s natural recharge is through infiltration from the Mojave River. Other sources of recharge include infiltration of storm runoff from the mountains and recharge from human activities such as irrigation return flows, wastewater discharge, and enhanced recharge with imported water (MWA 2014 citing Stamos et al., 2001). Over 90 percent of the basin groundwater recharge originates in the San Gabriel and San Bernardino Mountains (MWA 2014 citing Hardt 1971). Groundwater is discharged from the basin primarily by well pumping, evaporation through soil, transpiration by plants, seepage into dry lakes where accumulated water evaporates, and seepage into the Mojave River.

Mojave Region Groundwater Basins

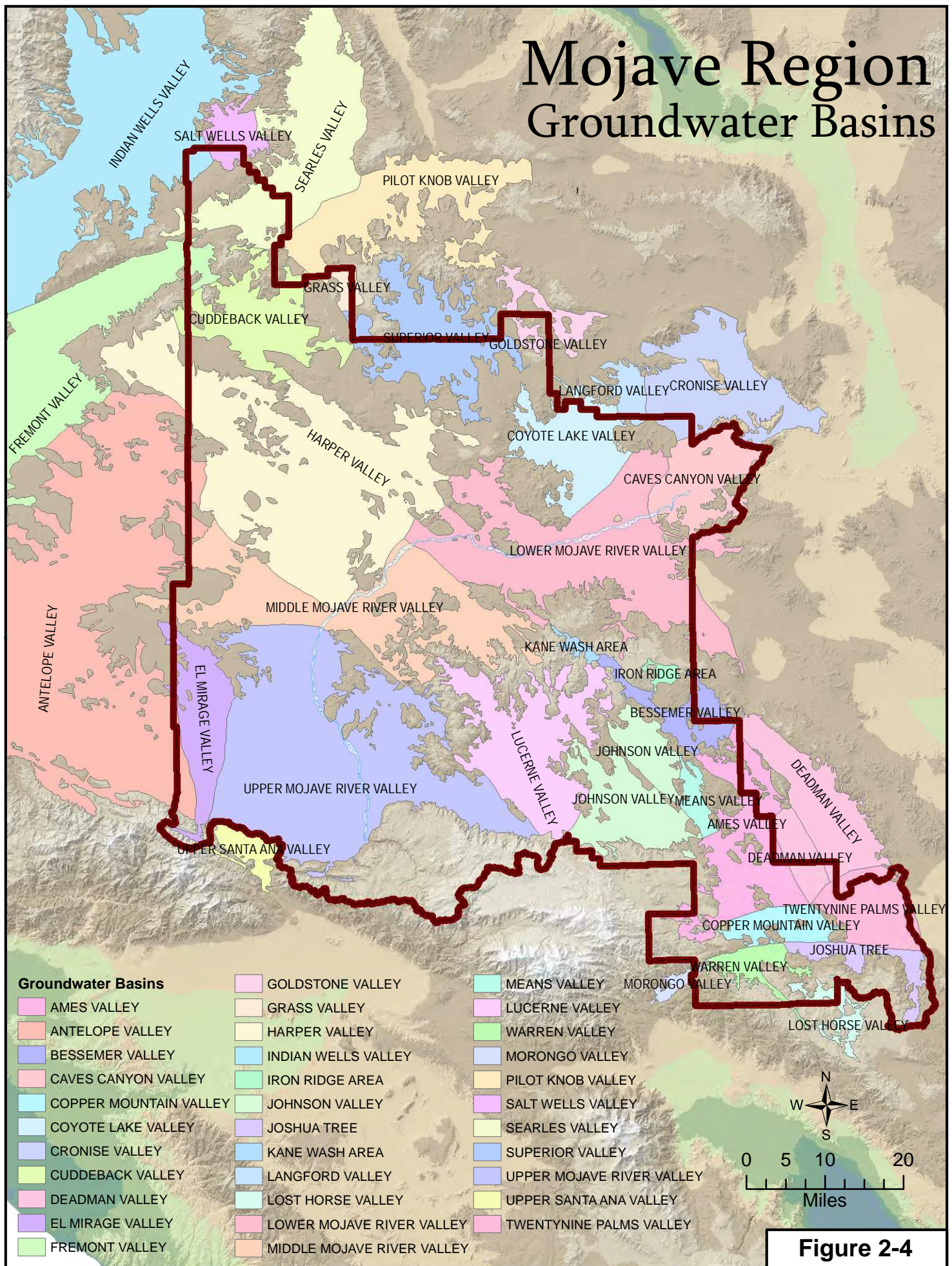


Figure 2-4

**Table 2-3
DWR Groundwater Basins**

DWR Basin	Sub-Basin	Groundwater Basin	Sub-Basin Name	Budget Type^(a)
South Lahontan Hydrologic Region				
6-35		Cronise Valley		C
6-36	6-36.01	Langford Valley	Langford Well Lake	C
6-37		Coyote Lake Valley		A
6-38		Caves Canyon Valley		A
6-40		Lower Mojave River Valley		A
6-41		Middle Mojave River Valley		A
6-42		Upper Mojave River Valley		A
6-43		El Mirage Valley		A
6-44		Antelope Valley		A
6-46		Fremont Valley		C
6-47		Harper Valley		A
6-48		Goldstone Valley		C
6-49		Superior Valley		C
6-50		Cuddeback Valley		C
6-51		Pilot Knob Valley		C
6-52		Searles Valley		C
6-53		Salt Wells Valley		C
6-54		Indian Wells Valley		A
6-77		Grass Valley		C
6-89		Kane Wash Area		C
Colorado River Hydrologic Region				
7-10		Twentynine Palms Valley		C
7-11		Copper Mountain Valley		A
7-12		Warren Valley		A
7-13	7-13.02	Deadman Valley	Surprise Spring	C
7-13	7-13.01	Deadman Valley	Deadman Lake	C
7-15		Bessemer Valley		C
7-16		Ames Valley		C
7-17		Means Valley		C
7-18	7-18.01	Johnson Valley	Soggy Lake	C
7-18	7-18.02	Johnson Valley	Upper Johnson Valley	C
7-19		Lucerne Valley		A
7-20		Morongo Valley		C
7-50		Iron Ridge Area		C
7-51		Lost Horse Valley		C
7-62		Joshua Tree		A
8-2	8-2.05	Upper Santa Ana Valley	Cajon	C

Source: MWA 2014.

Notes:

(a) Type A – either a groundwater budget or model exists, or actual extraction data is available. Type C – not enough available data to provide an estimate of the groundwater budget or basin extraction.

2.4.2 Morongo Basin/Johnson Valley Area

The Morongo Area represents the DWR groundwater basins east and southeast of Este Subarea that are within the Mojave Region and the Morongo Area. The Morongo Area has been divided into regions based on faults, groundwater divides, and existing DWR groundwater basin boundaries. These regions are shown on Figure 2-5 and include, from northwest to southeast, Johnson Valley, Means Valley, Ames Valley, Warren Valley, and Copper Mountain Valley/Joshua Tree regions.

The groundwater basins within the Morongo Area are bounded by the Ord Mountains to the north, the Bullion Mountains to the east, the San Bernardino Mountains to the southwest, and the Pinto and Little San Bernardino Mountains to the south. The larger Morongo Area includes numerous small alluvial basins that maintain relatively compartmentalized groundwater flow systems typically terminating in dry lakes scattered throughout the area (MWA 2014 citing Lewis 1972; Mendez and Christensen 1997). These smaller alluvial basins are separated by faults and bedrock outcrops. Tertiary and Quaternary age alluvial sediments form the main aquifers.

Groundwater flow in the Morongo Area is generally from south to north in Johnson Valley and from west to east-northeast elsewhere in the area. Natural recharge originates from the mountains on the southern and western boundaries of the Area, resulting in groundwater flow gradients to the north, east, and south adjacent to the boundaries, before turning to the east-northeast. The east-northeast flow direction is maintained to the eastern boundary of the Mojave Region. Groundwater flow is complicated locally by pumping, faulting, shallow bedrock, and enhanced recharge basins. For example, near the developed area of Yucca Valley, groundwater flow is controlled to some extent by local recharge basins (MWA 2014).

2.4.3 Adjudications

Two major groundwater basins in the Region are adjudicated basins that are managed by appointed watermasters. In addition to these adjudications described below, the Ames-Reche Groundwater Storage and Recovery Program was established by area partners Bighorn-Desert View Water Agency (BDVWA), Hi-Desert Water District (HDWD), County of San Bernardino Service Area 70 W-1 (CSA 70 W-1) and County of San Bernardino Service Area 70 W-4 (CSA 70 W-4), with Mojave Water Agency (MWA) providing administrative support. The Ames-Reche Groundwater Storage and Recovery Program and Management Agreement replaced the 1991 Ames Valley Water Basin Agreement between BDVWA and HDWD.

On May 29, 2012, BDVWA, HDWD, MWA, CSA 70 W-1, and CSA 70 W-4 entered into an agreement providing for more comprehensive regulation of the groundwater supplies protected in the Judgement, including provisions of supplemental water supplies for beneficial use, allocation of water production, storage and transfer rights to all of the public entity water retailers utilizing the subject groundwater supply, and continuing monitoring of water supply quality and quantity, all subject to the Court's continuing jurisdiction. MWA and County of San Bernardino 70 W-1 and 70 W-4 moved to intervene as parties to receive the benefits and undertake the obligations provided for in the Amended and Restated Judgement. The Stipulation and Amended and Restated Judgment were finalized by the Superior Court of the State of California, County of Riverside on September 17, 2014.

Effective July 1, 2015, LAFCO certified the annexation of CSA 70 W-1 as an Improvement District of BDVWA, informally named Improvement District Goat Mountain (IDGM).

Mojave Region Morongo Area Groundwater Basins

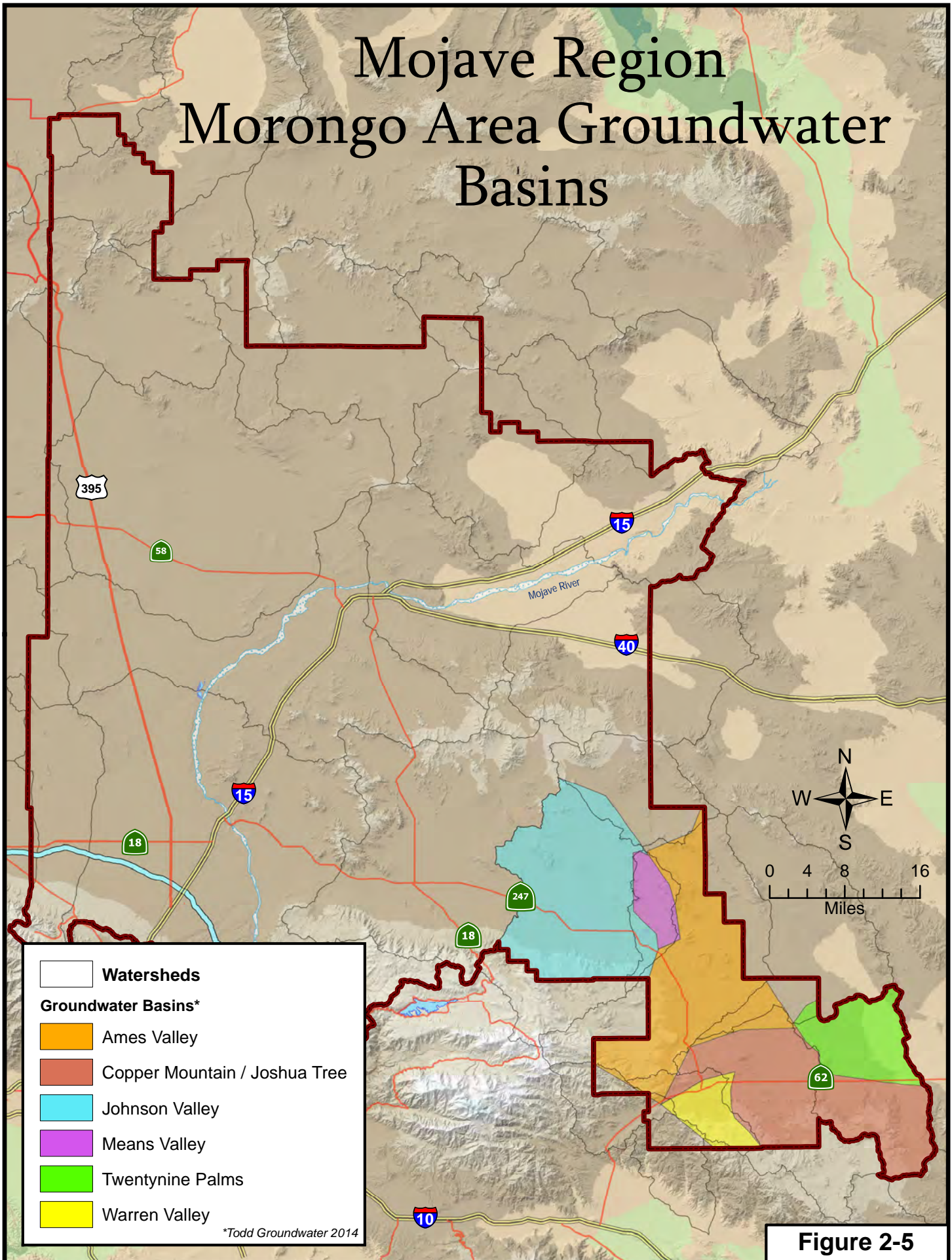


Figure 2-5

2.4.3.1 Mojave Basin Area

The Adjudication of the Mojave Basin Area (see Figure 1-3) was the legal process that allocated the right to produce water from the available natural water supply. Until adjudication proceedings were initiated and an independent court issued the Mojave Basin Area Judgment, water production rights and obligations had never been defined in the Mojave Basin. Triggered by the rapid growth within the Mojave Region, particularly in the Victor Valley area (the cities of Adelanto, Apple Valley, Hesperia, Victorville and surrounding communities), the City of Barstow and the Southern California Water Company filed a complaint in 1990 against upstream water users claiming that the increased withdrawals and lowering of groundwater levels reduced the amount of natural water available to downstream users. The complaint requested that 30,000 af of water be made available to the Barstow area annually and that MWA obtain supplemental water for use in other areas of MWA's service area.

About a year later, MWA filed a cross-complaint which declared that the native waters of the Mojave River and underlying groundwater were insufficient to meet the current and future demands made upon them. The cross-complaint asked the court to determine the water rights of all surface water and groundwater users within the Mojave Basin Area and the Lucerne and El Mirage Basins. During the following two years, negotiations resulted in a proposed Stipulated Judgment that: 1) formed a minimal class of producers using 10 acre-feet per year (AFY) or less who were dismissed from the litigation, and 2) offered an equitable remedy designed to alleviate overdrafts in a basin, consistent with the constitutional mandate to prevent waste and unreasonable water use and to maximize the beneficial use of the limited resource for water production by the remaining producers. The Riverside County Superior Court bound the stipulating parties to the Stipulated Judgment in September 1993, and further bound the non-stipulating parties to the terms of the Stipulated Judgment in January 1996 following trial. The Court appointed MWA as Watermaster of the Mojave Basin Area. The text of the Stipulated Judgment can be found at <https://www.mojavewater.org/files/judgment.pdf>.

Some of the non-stipulating parties appealed the Judgment of the Superior Court and the Appellate Court issued a final decision in June 1998. The final decision of the Appellate Court held the stipulating parties to the terms of the Stipulated Judgment, but excluded the appealing parties, with the exception of one appellant who sought a revised water production right under the Judgment. MWA requested the California Supreme Court to review the Appellate Court's decision in July 1998. The Supreme Court affirmed the Appellate Court's decision in August 2000, regarding the Stipulated Judgment and the exclusion of the appealing parties from the Judgment, but over-turned the decision of the Appeals Court as to the one party seeking additional production rights. Since 1996, most of the appealing parties have stipulated to the Judgment.

The Mojave Basin Judgment assigned Base Annual Production (BAP) rights to each producer using 10 AFY or more, based on historical production during the period 1986-1990. Parties to the Judgment are assigned a variable Free Production Allowance (FPA), which is a uniform percentage of BAP set for each subarea each year by the Watermaster. This percentage is reduced or "ramped-down" over time until total FPA comes into balance with available non-SWP supplies.

Any water user that pumps more than their FPA must purchase SWP replenishment water from the Watermaster equal to the amount of production in excess of the FPA, or transfer unused FPA from another party within the subarea.

2.4.3.2 Warren Valley Basin

The Warren Valley Basin adjudicated area is located within the Morongo Basin/Johnson Valley Area (Morongo). Groundwater from the Warren Valley Basin is used to supply the Town of Yucca Valley and its environs. Extractions from the Warren Valley Basin began exceeding supply in the 1950s and its progressively increasing overdraft led to adjudication of the Warren Valley Basin in 1977. In its Warren Valley Judgment (see Figure 1-3), the court appointed the HDWD as Watermaster and ordered it to develop a physical solution for halting overdraft. Objectives identified by the Watermaster Board included managing extraction, importing water supplies, conserving storm water, encouragement of conservation and reclamation, and protecting groundwater quality. A Basin Management Plan was adopted that called for importing SWP water from MWA through the then-proposed Morongo Basin Pipeline to balance demand and replenish past overdraft. The text of the Warren Valley Judgment can be found in Appendix B.2 of the 2014 update to the IRWMP (http://www.mywaterplan.com/files/mojave_irwm-plan_final_62614.pdf).

2.5 General Water Quality

2.5.1 Surface Water Quality

The surface waters within the Mojave Region support a variety of beneficial uses; the list below presents the beneficial use designations for major surface water bodies in the Mojave Region as identified in the Water Quality Control Plans for the Lahontan RWQCB and the Colorado River RWQCB. The Basin Plans do not identify beneficial uses for all water bodies in the Mojave Region; however the tributary streams of any specifically identified water body can generally be assumed to have the same beneficial use designations.

1. Municipal and Domestic Supply
2. Agricultural Supply
3. Industrial Service Supply
4. Groundwater Recharge
5. Water Contact and Non-Contact Water Recreation
6. Warm and Cold Freshwater Habitat
7. Wildlife Habitat
8. Freshwater Replenishment
9. Water Contact and Non-Contact Water Recreation
10. Commercial and Sport fishing
11. Migration of Aquatic Organisms

12. Water Quality Enhancement
13. Rare, Threatened, and Endangered Species
14. Spawning, Reproduction, and/or Early Development of Freshwater Fish
15. Flood Peak Attenuation

Not all the uses listed above apply to all water bodies, for specifics the reader is referred to the applicable Basin Plan. Nearly all water bodies in the Mojave Region support the first six listed beneficial uses. Many of the beneficial uses relating to habitat are supported in the creeks of the Mojave River; the east fork of the West Fork Mojave River is one of the few areas in the Mojave Region that provides cold freshwater habitat and spawning habitat. Rare, threatened, and endangered species beneficial uses are found in streams and many regional lakes or reservoirs, including among others, the Lower Narrows of the Mojave River. Local surface waters are not a direct source of drinking water supply in the Mojave Region, but they are a continual source of recharge to groundwater which is then used to meet municipal water demands. Table 2-4 shows just a portion of the water quality objectives meant to protect the beneficial uses in the Mojave River Watershed (see Figure 2-6 for locations of the Mojave River reaches). For site specific objectives for various locations in the watershed and for information on specific water quality parameters the reader is referred to the applicable basin plan.

Table 2-4
Water Quality Objectives for Waters in the Mojave River Watershed

Reach #	Mojave River Reach	TDS ^(a) (mg/L)	Nitrogen (mg/L) ^(b)
2	Mojave River (at Lower Narrows) ^(d)	312	5
3	Mojave River (at Barstow) ^(d)	445	6
4	Mojave River (upstream side of Waterman Fault) ^(d)	560	11
5	Mojave River (upstream side of Calico-Newberry Fault) ^(d)	340	4
6	Mojave River (upstream of Camp Cady Ranch Building Complex) ^(d)	300	1

Source: Lahontan Basin Plan, Tables 3-20 and Figures 3-13, 3-14.

Notes:

(a) TDS = Total Dissolved Solids

(b) mg/L Nitrogen as NO₃.

Mojave Region

Water Quality Objectives for Mojave River Reaches

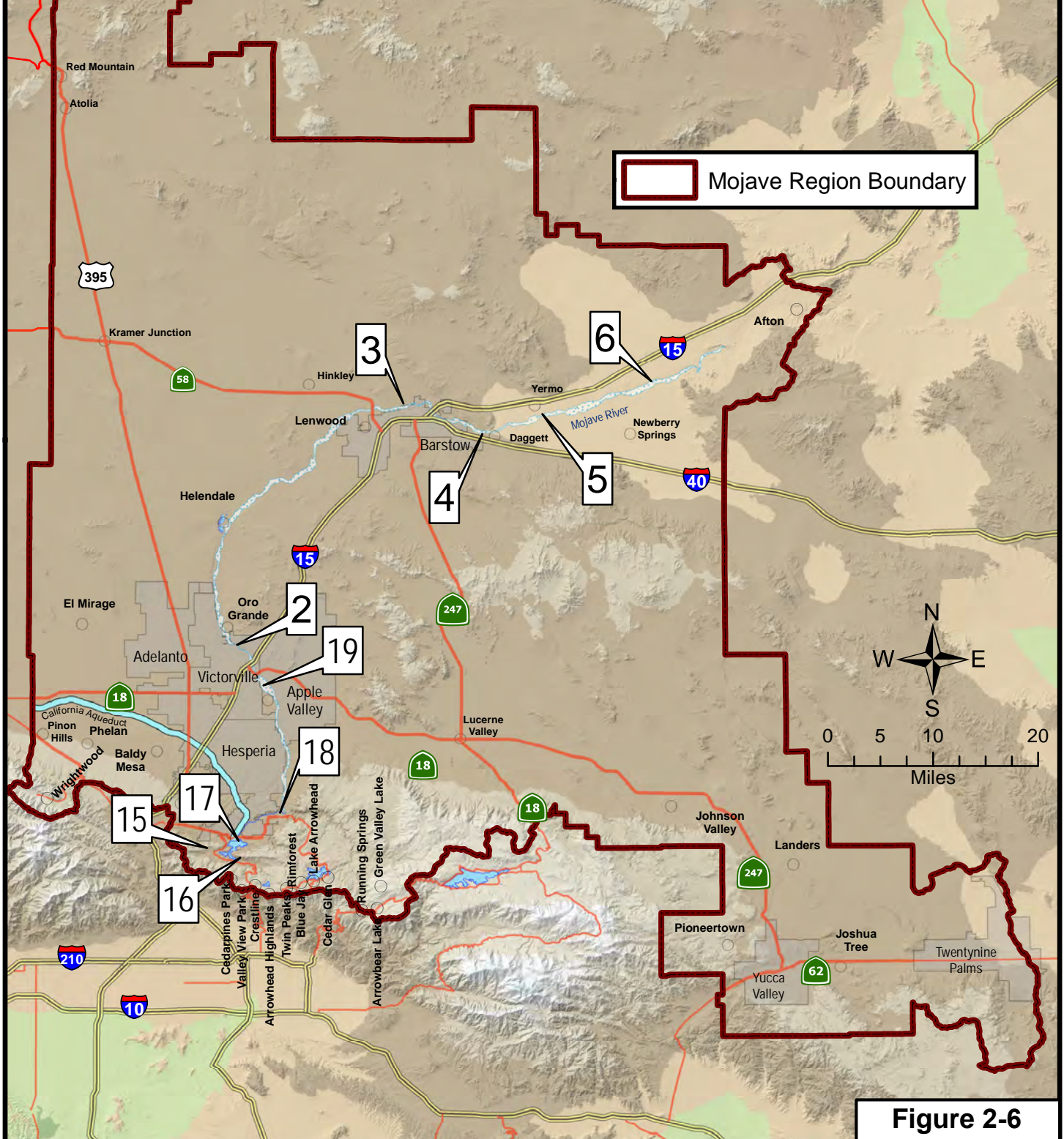


Figure 2-6

2.5.2 Groundwater Quality

Groundwater is used throughout the Region for drinking water and irrigation supplies. Impairment of groundwater can be assessed by comparing concentrations of constituents of concern in the groundwater against drinking water maximum contaminant levels (MCLs) and agricultural water quality parameters needed for specific crops. MCLs consist of primary and secondary MCLs. Primary MCLs are assigned to constituents for which a health-based risk is associated with consumption of water that exceeds a particular concentration. Secondary MCLs are assigned to constituents for which there is no health risk, but for which there may be aesthetic concerns above a particular concentration.

The Region's groundwater basins contain numerous areas with water quality issues both natural (arsenic, iron, manganese) and anthropogenic (fertilizers, petroleum, chromium compounds, and total dissolved solids [TDS]). Despite local groundwater quality issues, studies generally confirm the suitability of groundwater for beneficial uses in the Region.

2.5.2.1 Naturally Occurring Contamination

Arsenic is a naturally occurring element in groundwater. Ingestion of arsenic can result in short-term discomfort and long-term health effects such as skin discoloration, circulatory system impacts and increased cancer risks, and in high concentrations, arsenic consumption can lead to death. The State Division of Drinking Water has established a primary MCL of 10 ppb for arsenic. Arsenic can also be toxic to plants, but the toxicity varies depending on plant species. The 100 parts per billion (ppb) irrigation water quality target is a research based recommendation. Within the Mojave Region arsenic concentrations have been measured at levels above the MCL in a portion of the Mojave River Basin.

Iron and manganese are both naturally occurring elements in groundwater and often occur together. High levels of these contaminants in drinking water are not known to pose direct adverse health risks. However high levels of iron and manganese in drinking and irrigation water can be associated with aesthetic issues and can cause damages and reduced effectiveness of water distribution and treatment systems. Within the Region, iron and manganese levels have been detected above the MCL, only in the Alto Transition Zone subbasin of the Mojave River Basin (MWA 2014).

2.5.2.2 Human Caused Contamination

In the Mojave Region historical agricultural, industrial, and military land uses have contributed to local groundwater issues. Site specific contaminants are tracked by the RWQCBs. Past project use and the potential for groundwater contamination must be considered when making resource management decisions.

An ongoing issue particularly related to management of water supplies in the Mojave Region is TDS. TDS concentrations in the groundwater are influenced by the chemistry of the aquifer and quality of water recharging the aquifer. TDS is not a health hazard, but can be an aesthetic issue and can shorten the useful life of pipes and water-based appliances in homes and businesses. The secondary MCL for TDS is 500 parts per million (ppm). For irrigation, high TDS waters may cause low soil permeability, lead to increased irrigation requirements and can result in reduced yields. The California Environmental Protection Agency (CalEPA) recommends a

TDS target of 450 ppm for no effects on the most sensitive crops. TDS concentrations in groundwater appear to be increasing in the Region, and some areas are experiencing TDS concentrations in excess of 500 ppm – the secondary MCL. Because the Mojave Basin Area and Morongo Area are considered closed basins, salts that are added to the locally generated wastewater, contained in the imported and local reclaimed wastewater and imported with SWP supplies are mostly not removed from the basin. Population increases and the associated larger volumes of wastewater entering the Region's basins have contributed to the increasing trend in TDS concentrations in local groundwater.

2.6 Overview of Water Supplies

Water supply in the Mojave Region comes from numerous sources, which include natural surface water flows, wastewater imports from outside the MWA service area, SWP imports, and return flow from pumped groundwater not consumptively used. Almost all the water use within the MWA service area is supplied by pumped groundwater. Native surface supply, return flow, and SWP imports recharge the groundwater basins; therefore, water management practices concentrate on long-term methods to ensure sustainability as the groundwater basins are buffered from short-term fluctuations in any part of the water supply.

Currently, 47 water retailers exist within MWA boundaries; while the retailers each have water infrastructure for their individual service area, MWA constructs and maintains water infrastructure for its entire service area, which is also discussed below.

2.6.1 Retail Water Purveyors

Thirteen retail purveyors provide water service to approximately 90 percent of the residents within the Mojave Region. The remaining 10 percent of the Region's population is served by small water purveyors with less than 3,000 service connections or serving less than 3,000 AFY (and therefore not required to complete an Urban Water Management Plans). Also, a portion of the population is served by private wells and is not served by Urban Water Suppliers or small water purveyors.

All the retailers listed below, except those noted, supply water to their customers from local groundwater, which is replenished by MWA imported water.

- City of Adelanto's Water Department provides water service to the residents of Adelanto.
- Apple Valley Ranchos Water Company's (AVRWC's) service area covers approximately 50 square miles within Apple Valley and portions of the unincorporated area of San Bernardino County.
- County Service Area (CSA) 64's service area includes the Spring Valley Lake community.
- CSA 70J's service area includes the Oak Hills community.
- Crestline Lake Arrowhead Water Agency (CLAWA) covers approximately 50,000 acres in the areas of Silverwood Lake, Crestline, and Running Springs, about half of the service area is in the National Forest (CLAWA 2011)

- Golden State Water Company's (GSWC) service area includes customers living in and around the City of Barstow.
- Hesperia Water District's service area includes the City of Hesperia.
- Hi-Desert Water District's service area includes the Town of Yucca Valley and portions of the unincorporated area of San Bernardino County.
- Joshua Basin Water District's service area includes portions throughout a 96-square mile area between Yucca Valley, Twentynine Palms, Joshua Tree National Park and the Twentynine Palms Marine Corps Base.
- Lake Arrowhead CSD serves water to the 4,900 acres immediately surrounding Lake Arrowhead (Lake Arrowhead CSD 2011).
- Phelan Piñon Hills CSD's service area includes approximately 118 square miles of unincorporated area located at the transition between the foothills of the San Gabriel Mountains and southwestern portion of the Mojave Desert. The CSD was formed in 2008 after the dissolution of CSA 70L and all water and capacity rights and interests of the previous CSA were succeeded.
- Twentynine Palms Water District serving the City of Twentynine Palms.
- Victorville Water District was consolidated by action of the Local Agency Formation Commission beginning August 15, 2007, from the Baldy Mesa Water District, Victor Valley Water District and the City of Victorville Water Department. The City of Victorville also has a connection from the MWA Mojave River Pipeline to provide SWP water for cooling a power plant. This same source is used to treat and then inject SWP water into the local groundwater basin for use when supplies for the power plant are not available from SWP.

It is estimated that these suppliers delivered approximately 142,700 AFY in 2015 (the latest year for which data is available (MWA 2016, CLAWA 2010, Lake Arrowhead CSD 2016, Twentynine Palms Water District 2016)).

2.7 Ecological Processes and Environmental Resources

The Mojave Region is an ecologically highly varied area, with valuable natural resources. Encompassing a vast area of nearly 5,400 square miles within the Mojave Desert, the Region contains diverse landscapes and unique ecosystems that include desert sand dunes, dry lakes, marshes, rugged mountains, oases, and riparian forest. These natural features create valuable habitat that supports a large diversity of biological communities that include numerous sensitive and special status plant and animal species (BLM 2008 and USFWS 2011 cited in MWA 2014).

The natural ecosystem, comprised of a wide variety of biological resources (plant and animal species), as well as physical attributes (land, water, air and other important natural factors), is a vital resource contributing to the economic and physical wellbeing of the communities of the Mojave Region. Disruption of one factor may intrinsically affect another due to their inter-relationships, and the significance of those effects is difficult to determine without consideration of the whole system. All native species and ecosystems are of aesthetic, ecological, educational, historic, recreational and scientific value.

Ecological processes in the Region that are influenced and improved by resource management strategies are numerous. Of major concern in the Mojave Region is natural water production and watershed protection, which is critical to maintaining a healthy and balanced ecosystem and that which protects plant and wildlife species and provides for regionally valuable recreational uses (e.g., hiking, camping, and many other forms of outdoor recreation).

The Region is host to 47 threatened, endangered, or candidate species, and/or designated critical habitat (see Table 2-5). These are species of plants and animals that are designated endangered, threatened or rare by the California Department of Fish and Wildlife (CDFW) or the US Department of the Interior and Department of Commerce.

Within the Mojave Region there are many areas under special management to protect and preserve the Region's natural resources, detailed in Table 2-6.

Table 2-5
Sensitive Species in the Mojave Region

Classification	Species
Mammals	American badger, Mohave ground squirrel, Mojave River vole, Nelson bighorn sheep, pallid bat, Stephen's kangaroo rat, San Bernardino Merriam's kangaroo rat, Townsend's big-eared bat, spotted bat, western mastiff bat
Birds	Bald eagle, Bendire's thrasher, brown-crested flycatcher, burrowing owl, California condor, Coastal California gnatcatcher, Cooper's hawk*, Ferruginous hawk*, golden eagle, Inyo California towhee*, least Bell's vireo, LeConte's thrasher, northern harrier, gray vireo, prairie falcon, Southwestern willow flycatcher, Swainson's hawk, western snowy plover, western yellow-billed cuckoo*, yellow-breasted chat, yellow warbler, Yuma clapper rail
Reptiles	Coachella Valley fringe-toed lizard, desert tortoise, Mojave fringe-toed lizard, southwestern pond turtle, San Diego horned lizard
Fish	Colorado pikeminnow, Mojave tui chub*, unarmored threespine stickleback, bonytail chub, razorback sucker
Amphibian	Arroyo southwestern toad*, California red-legged frog*, Mountain yellow-legged frog*
Insects	Quino checkerspot butterfly, Delhi Sands flower-loving fly
Plants	Alkali mariposa-lily, ash-grey paintbrush, Barstow woolly sunflower, Bear Valley sandwort, Big Bear Valley woollypod, California taraxacum, Coachella Valley milk-vetch, crucifixion thorn, Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca, desert cymopterus, Gambel's watercress, Harwood's eriastrum, Lane Mountain milk-vetch, Little San Bernardino Mountains gilia, mentzelia tridentate, Mohave monkeyflower, Mojave fishhook cactus, Mojave spineflower, Mojave tarplant, Mojave tarweed, Nevin's barberry, Norrego milk-vetch, Parish's brittlescale, Parish's daisy, Parish's phacelia, Pedate checker-mallow, purple monkeyflower, Red Rock tarplant*, ribbed cryptantha, salt marsh bird's-beak, San Bernardino aster, San Bernardino bluegrass, San Bernardino milk-vetch, San Bernardino Mountains bladderpod, San Diego ambrosia, slender-horned spineflower, slender-petaled mustard, southern mountain wild-buckwheat, thread-leaved brodiaea, triple-ribbed milk-vetch

Source: USFWS 2013, CEC 2012, BLM 2005 as cited in MWA 2014.

Notes: As some data are based on larger geographic areas, such as on a county-scale, some species may not be found within the IRWM Region boundaries.

* Species listed here include species classified as rare, threatened, endangered, of special concern, and/or sensitive.

Table 2-6
Areas of Critical Environmental Concern in Mojave Area

ACEC Name	Description
Barstow Woolly Sunflower	<p>This 314-acre large area northeast of Kramer Junction protects the Barstow woolly sunflower, an extremely rare plant species limited to the western Mojave Desert. Additional special-status species within the Barstow Woolly Sunflower ACEC include the Mojave spineflower, Mohave ground squirrel, desert tortoise, chisel-toothed kangaroo rat, San Joaquin pocket mouse, kit fox, bobcat, and burrowing owl. Various land sections to the east and west of this area is managed by CDFW for protection of desert plants and animals (BLM 2005 and CEC 2012 cited in MWA 2014).</p>
Bendire's Thrasher	<p>This ACEC spans over 25,000 acres and two locations, one of which is located within the Mojave IRWM Region, northeast of Victorville. This site has high biological value, particularly for the protection of the Bendire's thrasher, and also provides valuable habitat for desert tortoise and golden eagle (CEC 2012 cited in MWA 2014).</p>
Big Morongo Canyon	<p>This 23,400-acre ACEC is managed as a wildlife reserve to protect riparian, wildlife, vegetation, in addition to cultural resource and recreation values. Big Morongo Canyon contains multiple special status and threatened species, many of which are found within riparian habitat, and six distinct plant communities. This ACEC contains two corridors connecting the San Bernardino Mountains to the Little San Bernardino Mountains.</p> <p>Big Morongo Canyon contains various sensitive habitats, which include Mojave riparian woodland, desert dry wash woodland, freshwater marsh, and Joshua Tree woodland. Special status vegetation species include Triple-ribbed milkvetch and Little San Bernardino Mountains gilia, and the palm oasis represents a unique plant assemblage of this site. Special status wildlife species are found at this site and include: desert tortoise, desert bighorn sheep, mountain lion, mule deer, gambell's quail, burrowing owl, least Bell's vireo, yellow breasted chat, and yellow warbler (CEC 2012). Additional species found in the Morongo area include badger, bobcat, and Pacific kangaroo rat (The Sonoran Institute 2009 cited in MWA 2014).</p>
Black Mountain	<p>This ACEC is one of the largest in the western Mojave Desert with almost 62,000 acres. Black Mountain lies northwest of Barstow, entirely within the Superior-Cronese and Fremont-Kramer DWMAs, and in part within the Black Mountain Wilderness. The ACEC contains desert tortoise critical habitat and known occupied habitat for other species, including the Mohave ground squirrel, LeConte's thrasher, desert cymopterus and Barstow woolly sunflower. Nest sites for golden eagle and prairie falcon are also found in this area.</p> <p>Black Mountain has high cultural value and protects prehistoric and Native American resources. This area is considered to contain "the most extensive assemblages of prehistoric petroglyphs in California" (BLM 2005 cited in MWA 2014).</p>

ACEC Name	Description
Carbonate Endemic Plants Research Natural Area	<p>This ACEC consists of over 5, 000 acres of public lands southeast of Lucerne Valley. This area protects numerous sensitive plant species and multiple sensitive wildlife species and provides a primary wildlife connectivity zone. Sensitive plant species found at this site include Parish's daisy, Cushenbury milk-vetch, Cushenbury oxythexa, Parish's brittlescale, San Bernardino milk-vetch, frosted mint, alkali mariposa, San Bernardino aster and Big Bear Valley woollypod. Sensitive wildlife species include golden eagle, desert tortoise, San Diego horned lizard, and big horn sheep (CEC 2012 cited in MWA 2014).</p>
Coolgardie Mesa	<p>This 13,248-acre ACEC is encompassed by the Superior Cronese DWMA, lying north of Barstow. Coolgardie Mesa was set aside primarily for the protection of Lane Mountain milkvetch and Barstow woolly sunflower. It also provides habitat for the desert tortoise and Mohave ground squirrel (CEC 2012 cited in MWA 2014).</p>
Fremont-Kramer Desert Wildlife Management Area (DWMA)	<p>This ACEC, designated as a DWMA, encompasses 511,525 acres including Fremont Valley, Rand Mountains, Red Mountain, Cuddeback Lake, and extends south beyond Kramer Junction. A large portion of its acreage is located within the western part of the Mojave Region. Fremont-Kramer Desert Wildlife Management Area contains Desert Tortoise Critical Habitat which is considered to be essential for recovery of this species. In addition, the area encompasses essential movement corridors which link wildlife habitats in the Western Rand Mountains and Fremont Valley to the Cuddeback Lake area and to both the Golden Valley and Grass Valley Wildernesses. This site provides migratory and nesting habitat to multiple songbirds, including the resident loggerhead shrikes and LeConte's thrashers. Sensitive and unique plant species within this site include the Barstow woolly sunflower, desert cumopterus, and mentzelia tridentata. Sensitive species found at this site include, in addition to those listed above, American badger, Mohave ground squirrel, townsend's big-eared bat, pallid bat, spotted bat, western mastiff bat, golden eagle, prairie falcon, burrowing owl, and long-eared owl (CEC 2012 cited in MWA 2014).</p>
Harper Dry Lake	<p>This 475 acre ACEC was established to protect remnant marshes at the southwestern edge of Harper Dry Lake, northwest of Barstow. The lake as well as the marsh and alkali wetland community adjacent to Harper Dry Lake are considered to hold potential for the discovery of rare and restricted-range plant species and provide an important resting site for thousands of migrating birds and attracts resident wetland birds, migratory waterfowl, shorebirds, and birds of prey.</p> <p>Harper Dry Lake has been found to support Western snowy plovers and is considered to be important to the conservation of Western snowy plover nesting habitat. Harper Dry Lake is also recognized as one of 223 nationwide BLM designated Key Raptor Areas and one of seven in the Mojave Desert. These designated areas are significant habitats for birds of prey species and have unusually high raptor nesting densities. Among the bird of prey species known to inhabit Harper Dry Lake are northern harrier, short-eared owl, ferruginous hawk, and long-eared owl.</p> <p>Harper Dry Lake is a Watchable Wildlife site, providing access and facilities for birdwatching and interpretive trails (BLM 2005 and CEC 2012 cited in MWA 2014).</p>

ACEC Name	Description
Juniper Flats	This ACEC is 2,500 acre area of public and private lands in the foothill area south of Apple Valley. This area was originally established as the Juniper Flats Cultural Area where early historic remains are found, such as evidence of cooking tool manufacture and hunting. The area also contains springs and riparian habitat within a dense stand of junipers. Among the sensitive species that find important habitat in Juniper Flats, are the San Diego horned lizard and the gray vireo. (BLM 2005 and CEC 2012 cited in MWA 2014).
Manix	The Manix ACEC is a 2,897-acre area located approximately 20 miles northeast of Barstow along the Mojave River. This site contains wildlife, paleontological and cultural resources as well as important habitat for the Mojave fringe-toed lizard (BLM 2005).
Mojave Fishhook Cactus	Established in 1984, this ACEC is composed of two parcels, making up 628 acres in the Brisbane Valley, southwest of Barstow. The primary purpose of this ACEC is the protection of the yellow-spined form of the Mojave fishhook cactus and the Mojave monkeyflower (BLM 2005 cited in MWA 2014).
Mojave Fringe-toed Lizard	This 25,000 acre ACEC is made up of 10 separate units, portions of which lie within the Mojave IRWM Region, east of Barstow. The protected areas include sand dune ecosystems with associated shade plants, and areas for source sand and wind and sand corridors that are necessary for long-term survivorship of the Mojave fringe-toed lizard which is restricted to these specific sand habitats. Rare vegetation species present at this site include Borrego milk-vetch, ribbed cryptantha, and harwood's eriastrum (BLM 2005 cited in MWA 2014).
Mojave Monkeyflower	This ACEC consists of two units, both of which are located within the Region between Barstow and Victorville. This 46,487-acre area provides protection for sensitive and restrictive plant species, particularly the Mojave monkeyflower. This site also includes desert tortoise and provides important wildlife connectivity (CEC 2012 cited in MWA 2014).
Ord-Rodman DWMA	This ACEC covers 265,725 acres and generally aligns with boundaries identified within the Desert Tortoise Mojave Population Recovery Plan. This area contains high density desert tortoise habitat and provides tortoise habitat linkage. (CEC 2012 cited in MWA 2014).
Parish's Phacelia	This 899 acre ACEC is located within the Superior Cronese DWMA. This site was designated for the protection of the largest known population of Parish's phacelia, a BLM sensitive species (CEC 2012 cited in MWA 2014).
Rainbow Basin	Located approximately ten miles north of Barstow, this 4,087-acre ACEC is popular for its colorful rocks and geologic formations. Rainbow Basin protects two nesting sites for prairie falcon and contains habitat for desert tortoise as well as Mohave ground squirrel. (BLM 2005 cited in MWA 2014). Rainbow Basin is also of cultural importance, containing late Miocene age fossil assemblages, which is one of the most intensively, studied fossil areas in the country. Rainbow Basin has hosted numerous archaeological sites including petroglyphs and historic mining remnants.
Red Mountain Spring	This ACEC covers 717 acres in the northeastern side of Red Mountain, in the northwestern corner of the Region. Red Mountain Spring has both significant wildlife resources in addition to prehistoric and historic cultural resources. The area falls within the Mohave Ground Squirrel Conservation Area and the Fremont-Kramer DWMA and contains designated tortoise critical habitat (BLM 2005 and CEC 2012 cited in MWA 2014).

ACEC Name	Description
Rodman Mountains Cultural Area	This ACEC lies largely within the Rodman Mountains Wilderness area, providing 6,024 acres of protection of cultural and wildlife resources. Among the cultural values at this site are the petroglyphs of religious and spiritual significance to Native Americans. The Area contains raptor nests and limited desert tortoise habitat, for which this area is also included in the Ord-Rodman tortoise DWMA (BLM 2005 cited in MWA 2014).
Soggy Dry Lake Creosote Rings	This 186-acre ACEC lies east of Lucerne Valley and contains the largest known creosote rings on public lands. The site was designated for protection of an Unusual Plant Assemblage based on its uniqueness, high research value and susceptibility to damage from intensive recreation uses (CEC 2012 cited in MWA 2014).
Superior-Cronese	This ACEC covers 629,300 acres and covers desert tortoise critical habitat as identified in the Desert Tortoise Mojave Population Recovery Plan. Similar to the Ord-Rodman DWMA, Superior-Cronese contains high density desert tortoise habitat and provides tortoise habitat linkage. The site contains highest value critical habitat for desert tortoise conservation and recovery. Additional special status plant and animal species found at this site include the Barstow woolly sunflower, crucifixion thorn, desert cymopterus, Mojave monkeyflower, and Mohave ground squirrel. (CEC 2012 cited in MWA 2014).
Upper Johnson Valley Yucca Rings	This ACEC is located to the northeast of Lucerne Valley, along the southwestern slope of Fry Mountains. The 320-acre site contains the largest and oldest Mojave Yucca rings known, estimated to be up to 2,250 years old. Similar to the Soggy Dry Lake Creosote Rings site, Upper Johnson Valley Yucca Rings was designated for protection of an Unusual Plant Assemblage based on its uniqueness, high research value and susceptibility to damage from intensive recreation uses (CEC 2012 cited in MWA 2014).
West Paradise	This ACEC consists of 1,243 acres, which lie entirely within the Superior Cronese DWMA near Lane Mountain, in the northeastern portion of the Region. All known populations of the Lane Mountain milkvetch outside of the Fort Irwin Expansion Area are located within this site and the Coolgardie Mesa Conservation Area. Important wildlife species found at this site include desert tortoise and Mohave ground squirrel (CEC 2012 cited in MWA 2014).

2.7.1.1 Parks, Reserves and Wilderness Areas

Various parks, reserves and wilderness areas within the Region also provide protection for the existing ecological resources as well as recreational and educational opportunities associated to those resources. Below is a description of major parks and other managed areas with ecological significance in the Region.

Black Mountain Wilderness. This wilderness area located northwest of Barstow provides opportunities for hiking, camping, and hunting. Black Mountain wilderness area is dominated by the mesa that rises above volcanic flow features in the northwest corner of the wilderness. A deposit of fine-grained sand dune is found in the southeast corner and significant prehistoric rock art is also contained within the area. Elevations range from 2,080 to 3,940 feet and the wilderness area boasts wildlife such as golden eagles and prairie falcons, as well as spring flower displays (BLM 2005 2011 cited in MWA 2014).

Camp Cady Wildlife Area. This area is a riparian oasis located between Barstow and Afton Canyon on the Mojave River. This site, covering 1,552 acres, is managed by CDFW for the protection of wildlife, serving as a refuge for Mojave tui chub, an endemic endangered fish. Mesquite thickets and riparian forests at the site provide habitat for numerous declining bird species, including, yellow-breasted chat, yellow warbler, summer tanager, LeConte's thrasher and Lucy's Warbler. Notably, Camp Cady has the highest number of Lucy's warbler within the western Mojave Desert. Camp Cady Wildlife Area is an important habitat area for nesting and wintering raptors, including golden eagle, prairie falcon, and ferruginous hawk as well as for the Mojave fringe-toed lizards which find important habitat in the sand dunes and hummocks in the western portion of Camp Cady (BLM 2005 cited in MWA 2014).

Grass Valley. This wilderness area extends over 30,000 acres and consists primarily of the Grass Valley itself, with a series of scattered hills that rise to 600 feet above the desert floor. The dominant vegetation community found in this wilderness is creosote bush scrub with scattered Joshua trees. Wildlife includes various raptors, desert tortoise and Mohave ground squirrel (BLM 2005 2011a cited in MWA 2014).

Joshua Tree National Park. Joshua Tree National Park extends over nearly 800,000 acres, of which a small portion in the northwest corner of the Park lies within the Mojave IRWM Region. The Park lies in an area where three of California's ecosystems come together: the Colorado Desert, the Mojave Desert and the Little San Bernardino Mountains. The latter two fall within the Region boundaries. Diverse and unique natural features, including sand dunes, dry lakes, flat valleys, rugged mountains, and oases, create habitat for a diversity of biological communities. Within the Mojave Desert portion of the Park, the Joshua tree is a dominant feature in the landscape. The Little San Bernardino Mountains, located in the western part of the Park provide habitat for a community of California juniper and pinyon pine. The Park contains a high diversity of plant and animal species, the latter which include herds of desert bighorn, and six species of rattlesnakes. Over 250 kinds of birds have been recorded at the Park, many of which are migratory species (NPS 2013 cited in MWA 2014).

King Clone Ecological Reserve. This 488-acre CDFW reserve is located north of Lucerne Valley, surrounded by the BLM's Johnson Valley Open Area. The site was primarily established to protect ancient creosote bushes, including the oldest known specimen, a circular shrub approximately 11,700 years old (BLM 2005 cited in MWA 2014).

Mojave Narrows Regional Park. This Park is owned by the State Wildlife Conservation Board and operated by San Bernardino County Department of Regional Parks. The area comprises 850 acres, of which 450 acres are devoted to habitat. A permanent stream supports extensive riparian forest, providing habitat for numerous species and creating a biological hotspot where 17 sensitive species are found together (BLM 2005 cited in MWA 2014).

Newberry Mountains Wilderness. Prominent features of this wilderness area are its rugged volcanic mountains, with elevations reach up to 5,100 feet and deep, maze-like canyons. Wildlife found in this area includes desert bighorn sheep, prairie falcons and golden eagles. Wildflower displays can be seen in Spring along the western area boundary (BLM 2005 and 2011a cited in MWA 2014).

Rodman Mountains Wilderness. This wilderness area is located southeast of Barstow, spanning over 34,000 acres. Within this area visitors will observe a series of ridges and valleys

that reach up to 5,000 feet, with colorful escarpments and calico-colored mountains. Several natural water “Tanks” are found throughout the wilderness, within ancient lava flows, and during heavy rains, cascades develop along the deep drainage channels. Raptors can be observed at this core raptor breeding area (BLM 2005 2011a cited in MWA 2014).

West Mojave Desert Ecological Reserve. This CDFW reserve, made up of 22 parcels and covering nearly 12,000 acres, lies within desert tortoise critical habitat and the Fremont-Kramer DWMA. The reserve includes habitat for desert tortoise, Mohave ground squirrel, Le Conte’s thrasher and Barstow woolly sunflower, among other species (BLM 2005 cited in MWA 2014).

Section 3: Water Quality Compliance

3.1 Activities that Impair the Beneficial Use of Storm Water

The primary difficulty in putting storm water to beneficial use in the Mojave Area is the Mojave Basin Area Judgement, *City of Barstow et al. vs. City of Adelanto et al. Superior Court Case No 208568, Riverside County*. A part of the adjudication of the Mojave Basin Area is an injunction against diverting storm water away from downstream users of the Mojave River and a prohibition of any projects that could reduce the amount of storm water flow that would otherwise go through the naturally occurring hydrologic regime to a downstream user. The Adjudication also prohibits any project that alters the bed of the Mojave River or which reduces the surface area over which storm water flows. The Adjudication does not prevent agencies from taking emergency action as necessary to protect the physical safety of residents and structures, but any such action must minimize any reduction in the quantity of storm water flow.

3.2 Activities Associated with Pollution of Storm Water and/or Dry Weather Runoff

The water quality challenges associated with storm water are well documented and relate in large part to disruption of natural watershed processes (see Box 3-1). The Water Quality Control Plan for the Lahontan Region (page 4.3-1, Lahontan RWQCB 2015) and the Mojave River Watershed Group (MRWG) Stormwater Management Program (Section 6.3 on page 6-8 to 6-15, and Section 7.6 on page 7-14; MRWG 2003) include examples of activities that can generate or contribute to the pollution of storm water or dry weather runoff, or impair beneficial use of storm water or dry weather runoff. Activities identified include:

- Activities that expose soil and/or enhance erosion (such as construction and improper grading), leading to sediment in runoff;
- Deposition of trash picked up in storm water
- Excessive use of fertilizers above that used by the plants/crops that enter storm water
- Improper animal waste management in areas exposed to storm water runoff
- General wear on buildings and cars leaving petroleum products, solvents, wood preservatives, paints, and heavy metals on impermeable surfaces
- Sewage spills and septic overflow in areas subject to storm water
- Spills at loading docks and maintenance bays
- Illegal dumping

The documents also include examples of the types of pollutants associated with the activities. For example, isolating vehicle and equipment wash areas from the storm system is important, as wash water could “contribute metals, oil and grease, solvents, phosphates, and suspended solids to the storm water conveyance system” (page 6-12 and 6-13; MRWG 2003). Both documents include recommendations for best management practices (BMPs) to mitigate these risks.

Box 3-1
Water Quality Issues Related to Storm Water

The following text is taken from the Lahontan RWQCB Basin Plan

"The term 'storm water' includes surface runoff resulting from rainfall and snowmelt. It is essentially synonymous with "urban runoff," "highway runoff," and "surface runoff". Under natural conditions, most rainfall and snowmelt is absorbed by soils and taken up by vegetation, and very little surface runoff occurs. Air pollutants in precipitation are largely removed by soils and vegetation before they reach surface waters. (Natural surface runoff events can be significant in the case of desert flash floods, and where soils and vegetation have been disturbed by natural events such as wildfires.) Human activities in watersheds, especially the creation of large amounts of impervious surface (e.g., roads, parking lots, and buildings) can greatly increase the potential for surface runoff, reduce the potential for soil/vegetation treatment of chemicals in rain and snow, and add a large variety of contaminants to the runoff discharge.

Human development of a watershed affects surface runoff quality by increasing the intensity of peak discharges, the volume of runoff per storm, the velocity of runoff during the storm, and the frequency and severity of flooding. These changes can lead to increases in stream bedload sediment transport and streambank erosion, and to consequent degradation of aquatic habitat.

Urban runoff quality varies to some extent with land use (industrial vs. commercial vs. residential). Storm water constituents of concern include sediment (from construction sites and unstabilized areas); other particulate matter (including glass and plastics); nutrients (from sediment, fertilizer, and animal wastes); and petroleum products, solvents, wood preservatives, paints, and heavy metals from wear and tear on roads, buildings, and vehicle parts. Organic matter (e.g., from animal wastes and fallen leaves) can give storm water a significant biochemical oxygen demand (BOD). Coliform bacteria (from soils, animal excrement, and sewage spills) can also be present. Toxic "priority pollutants" in urban runoff include lead, zinc, copper, arsenic, chromium, cadmium, nickel, cyanide, and asbestos. In mountainous areas of the Lahontan Region, runoff containing salt and other deicing chemicals used on roads and parking lots during the winter is of concern. High intensity storm water flows reaching surface waters can also raise stream temperatures, scour streambeds, and damage aquatic habitat, particularly fish spawning habitat.

Storm water quality also varies with time. In California, which generally has dry summers and wet winters, pollutants can accumulate on pavement over the summer and can be flushed into surface waters in high concentrations by the first significant fall rainstorm. These high "first flush" concentrations may be especially stressful to aquatic organisms. Runoff from later storms may have lower pollutant concentrations. Spring snowmelt may also provide a flush of accumulated atmospheric acids and nutrients, including nitrogen, into surface waters. Flushing by desert flash floods and by summer thunderstorms in mountainous portions of the Lahontan Region are both of concern....

Although storm water quality (particularly that of urban and highway runoff) has not been well studied elsewhere in the Lahontan Region, many communities and highways are located near surface waters. Storm water runoff of metals, deicing agents, and petroleum products from paved surfaces may be contributing to water quality problems. Even in desert areas, infrequent flood events may flush pollutants from urban surfaces and lead to surface and/or ground water quality problems."

3.3 NPDES and TMDL Compliance

The 1972 Federal Clean Water Act (CWA) established strategies for managing water quality, as described in Section 3.4.1 (page 3-17 to 3-19) of the IRWMP. To support these strategies, Section 303(d) of the CWA requires the identification of water bodies that do not meet, or are not expected to meet, water quality standards (i.e., impaired water bodies), and requires development of a TMDL for each listing. Table 3-1, below, presents a summary of 303(d) listed impaired water bodies in the Mojave River Watershed, the associated pollutant(s) of concern, the potential sources as reported by the Regional Water Boards, the completion date for the TMDL, and an assessment of whether the pollutant is applicable to storm water (modified Table 3-12, page 3-23 of the IRWMP; MWA 2014).

Table 3-1
303(d) List of Impaired Water Bodies in the Mojave River Watershed

303(d) Listed Waterbody ^(a)	Pollutant ^(a)	Potential Sources ^(a)	Regional Water Board TMDL Completion Year ^(a)	Applicable to Storm Water? ^(b)
Crab Creek	TDS	Unknown	2021	Y
Holcomb Creek	TDS	Unknown	2021	Y
Mojave River (Mojave Forks Reservoir outlet to Upper Narrows)	Fluoride	Natural	2021	N
Mojave River (Upper Narrows to Lower Narrows)	Fluoride	Natural	2021	N
	Sulfates	Nonpoint, Natural	2021	N
	TDS	Unknown	2021	Y
Silverwood Lake	Mercury	Unknown	2025	Y
	Polychlorinated biphenyls (PCBs)	Unknown	2025	Y
Lake Arrowhead	Mercury	Unknown	2025	Y
Lake Gregory	Mercury	Unknown	2025	Y
Sheep Creek	Nitrate	Unknown	2021	Y
	TDS	Unknown	2021	Y

(a) http://www.swrcb.ca.gov/rwqcb6/water_issues/programs/tmdl/303d_305b/2012/docs/apxh_proposed.shtml, accessed April 20, 2016.

(b) Natural sources and those not included in MS4 or general statewide storm water permits are assumed not to be applicable to storm water discharges.

3.3.1 Mojave River Watershed MS4 Phase II Storm Water Permit

The CWA was amended in 1987 to include coverage for urban runoff discharges from MS4s under the National Pollutant Discharge Elimination System (NPDES), as described in Section 3.5.3 (page 3-35 to 3-36; MWA 2014) of the IRWMP. Municipalities may require coverage by a Phase I or Phase II MS4 permit, depending on the municipality's population. As described in

Section 3.5.3.3 (page 3-36) of the IRWMP, no municipalities are large enough in the portion of the Mojave Region that is within the Colorado River RWQCB area to require compliance with the Phase I or II MS4 permit regulations; however, the City of Barstow, Town of Apple Valley, Cities of Hesperia and Victorville, and County of San Bernardino are in the Lahontan RWQCB area and collectively formed the MRWG to jointly request coverage under the Phase II Small MS4 General Permit in accordance with the State Water Board Water Quality Order No. 2003-0005-DWQ and NPDES General Permit No. CAS000004 (MWA 2014). The MRWG developed the *Stormwater Management Program for the Mojave River Watershed* (SWMP) which describes control measures for protecting area water quality from storm water and non-storm water discharges, particularly for the urbanized portion of the watershed. The Lahontan RWQCB accepted the SWMP and issued coverage under the Phase II permit to the MRWG in February 2005 (MRWG 2012). In 2013 a revised permit was approved and adopted by the SWRCB and extended coverage through July 2018. The MS4 Permit was administratively extended until a new permit is issued. The MRWG SWMP and guidance document outline a comprehensive process to develop, implement, and enforce a program to reduce the discharge of pollutants from the MS4 to the Maximum Extent Practicable (MEP) in order to better protect surface water quality. The guidance document identifies the Permit's program elements, the responsible implementing party, and the Permit compliance year. The MRWG has and will continue to implement these program elements to prevent or reduce potential adverse effects of runoff on receiving water bodies. Specific compliance activities involve education and outreach, performing inspections to identify and end illicit discharges, implementing and enforcing a construction site storm water runoff control program, having landscape codes in place that result in post-construction storm water management, development of a storm water quality monitoring program, and performing program effectiveness assessment and improvement as part of annual reporting to the Lahontan RWQCB (MRWG 2014). Amendments to the NPDES General Permit require that certain permittees, where urban runoff is considered a source of impairment contributing to issue identified in the TMDL, prepare plans and then implement measures to minimize, control, and prevent runoff from contributing pollutants to impaired water bodies. Urban runoff has not been identified as a contributor to water quality impairments identified in Table 3-1 and no Mojave River Watershed MS4 Permittees are required to undertake specific TMDL compliance actions at this time.

3.3.2 Construction, Industrial, and Utility Activities

Storm water discharges associated with construction activity, industrial activity, and utilities other than water suppliers may also be covered by statewide general permits under NPDES. A summary of applicable NPDES permits issued by the Lahontan and Colorado River RWQCBs is presented in Table 3-2; a list of the applicable, active NPDES permits is included as Appendix B.1.

Table 3-2
Applicable NPDES Permits Issued by the Lahontan and Colorado River RWQCBs

Type of Permit	Total ^(c)
Industrial Storm Water	111
Construction Storm Water	1
Phase II Small MS4 ^(a)	5
WDRs (see Section 3.4) ^(b)	103

- (a) Four of these municipalities formed the Mojave River Watershed Group to collectively apply for coverage under the Phase II Small MS4 General Permit.
- (b) Based on the State Water Board website, accessed April 8, 2016
<https://ciwqs.waterboards.ca.gov/ciwqs/readOnly/CiwqsReportServlet?inCommand=reset&reportName=RegulatedFacility>
- (c) The totals include all applicable permits issued by the Lahontan and Colorado River RWQCBs and may include permits from outside the Mojave Region.

Compliance monitoring is performed on an ongoing basis for both Regional Water Boards to determine if the watershed is in compliance with an identified TMDL, as described in Section 10.3.1.4.3 (page 10-22) of the IRWMP (MWA 2014). As TMDLs are developed by the Regional Water Boards, the compliance monitoring program will be expanded to include the additional parameters to remain compliant with TMDL implementation plans and NPDES permits. The MS4 permits and the statewide general permits also include requirements for monitoring and compliance with TMDLs associated with storm water, and permittees must adjust to new requirements as they are implemented. Section 10.3.2.1 (page 10-22) of the IRWMP describes additional actions taken by the MRWG to maintain compliance with their MS4 permit (MWA 2014).

TMDLs are still under development in the Mojave Region. No Mojave River Watershed MS4 Permittees are required to undertake specific TMDL compliance actions at this time. However, actions and enforcement related to the MS4 Phase II Permits will improve water quality. As described in the Mojave River Watershed Technical Guidance Document for Water Quality Management Plans (Section 3.3, page 20-25), as part of the permitting process, developments must identify all pollutants that are expected to be generated from the proposed project and the guidance manual provides lists of expected pollutants based on project type, existing and historic land uses and receiving water impairments.

By identifying storm water and dry weather management projects, this plan will assist with the ultimate TMDL implementation. Further, all projects proposed and implemented as part of the Mojave SWRP effort will comply with applicable town, city, and county storm water documents and ordinances, including the SWMP (MRWG 2003) and San Bernardino County's *Hydrology Manual* (SBC 1986).

All projects will also comply with applicable state and federal regulations, including the California Environmental Quality Act (Public Resources Code § 21000 et seq.), the Clean Water Act, the Safe Drinking Water Act, applicable water rights permits and licenses, State Water Board plans and policies, State and Regional Water Board water quality control plans and policies (Wat. Code, § 10562, subd. (b)(5)), NPDES permits, Areas of Special Biological Significance Compliance Plans (State Water Board Resolution 2012-0012), conditional waivers issued by

State and/or Regional Water Boards (Wat. Code, § 10562, subds. (b)(5) & (6).), and the Mosquito Abatement and Vector Control District Law (Division 3, Chapter 1 of the Health and Safety Code beginning with Article 2000.) (State Water Board 2015). Compliance with applicable laws and policies is assured by the project screening criteria (see section 5.2), which are used to evaluate projects for inclusion in the SWRP.

3.4 Other Permits

According to the California Code of Regulations, Title 27 section 20090, there are nine categories of discharges that are regulated by the Waste Discharge Requirements (WDRs) Program: sewage, wastewater, underground injection, Regional Water Board cleanup actions, gas condensate, soil amendments, drilling waste, reuse, and waste treatment in fully enclosed units. Some entities within the Mojave Region have wastewater discharge permits, such as the Victor Valley Wastewater Reclamation Authority (Section 1.1.4.2, page 1-8; MWA 2014). However, waste discharge permits do not typically apply to storm water discharges as storm water discharges are regulated under other permits, as discussed in Section 3.2. Table 10-3 (page 10-17 to 10-18) of the IRWMP includes a description of the existing monitoring efforts for WDRs, which include sampling and annual Self-Monitoring Reports. As of April 8, 2016, there are 155 active WDRs issued by the Lahontan and Colorado River RWBs (as presented in Table 3-2); a list of the active WDRs is included as Appendix B.2.

3.5 Plan Relationship to Waste Discharge Requirements

By identifying storm water and dry weather management projects, this plan will assist with the ultimate TMDL implementation. Further, all projects proposed and implemented as part of the Mojave SWRP effort will comply with applicable town, city, and county storm water documents and ordinances, including the SWMP (MRWG 2003) and San Bernardino County's *Hydrology Manual* (SBC 1986).

All projects will also comply with applicable state and federal regulations, including the California Environmental Quality Act (Public Resources Code § 21000 et seq.), the Clean Water Act, the Safe Drinking Water Act, applicable water rights permits and licenses, State Water Board plans and policies, State and Regional Water Board water quality control plans and policies (Wat. Code, § 10562, subd. (b)(5)), NPDES permits, Areas of Special Biological Significance Compliance Plans (State Water Board Resolution 2012-0012), conditional waivers issued by State and/or Regional Water Boards (Wat. Code, § 10562, subds. (b)(5) & (6).), and the Mosquito Abatement and Vector Control District Law (Division 3, Chapter 1 of the Health and Safety Code beginning with Article 2000.) (State Water Board 2015). Compliance with applicable laws and policies is assured by the project screening criteria (see section 5.2), which are used to evaluate projects for inclusion in the SWRP.

Specifically this SWRP will assist in meeting applicable waste discharge requirements included in the MS4 Phase II Permit. A summary of permit requirements and how they are assisted by this SWRP, is provided below:

- Permit Element 2. Education and Outreach Program. The Phase II Small MS4 General Permit requires the implementation of a public education and outreach program to distribute educational materials to the community and conduct outreach

activities to measurably increase the public's knowledge and awareness regarding the municipal storm drain system, impacts of urban runoff and non-storm water discharges on receiving water bodies, steps the public can take to reduce pollutants in runoff, and potential best management practices. This plan, its public outreach, and discussion in the IRWMP have furthered public education on storm water.

- Permit Element 3. Public Involvement and Participation Program. As part of the MS4 Phase II Permit the permittees are to contribute to a regional outreach and education collaborative effort to schools, businesses, and residents and through social media. These outreach efforts were enhanced by the four public meetings held during preparation of this plan and will continue to benefit during ongoing coordination between the IRWMP group and MS4 Phase II Permittees.
- Permit Elements 5 and 6. The purpose of the Construction Site Stormwater Runoff Control Program (Element 5) is to develop, implement, and enforce a program to prevent the discharge of construction site pollutants and minimize or eliminate negative impacts on the beneficial uses of receiving waters. The purpose of the Post-Construction Stormwater Management Program is to minimize potential adverse impacts to water quality from development projects by incorporating site planning, hydromodification measures, post-construction controls (site design, source control, and treatment control BMPs), and long-term maintenance agreements. This SWRP incorporates the Mojave River Watershed Technical Guidance Document for Water quality Management which lays out the requirements for all new development and significant redevelopment projects in the MS4 Permittee jurisdiction.

Section 4: Organization, Coordination, Collaboration

California Water Code Section 10562 (b)(4) requires that SWRPs provide opportunities for community participation in plan development and implementation and Section 10565(a) requires that local agencies and nongovernmental organizations be consulted in the SWRP development. This section of the Mojave SWRP describes the community engagement processes that occurred as part of plan development.

4.1 Coordination with MS4 Permittees

This document, which is a functional equivalent plan, was developed through collaboration between the MWA and SBC. MWA leads the IRWM efforts for the Mojave Region, and SBC is a representative of the MRWG. The MRWG, which formed to request coverage under the 2003 Phase II Small MS4 General Permit, as described in Section 3.2. The MRWG consists of SBC, the City of Barstow, the Town of Apple Valley, the City of Hesperia, and the City of Victorville. SBC and the MRWG have developed various storm water guidance documents through these programs, including the MRWG SWMP which describes control measures for protecting area water quality. The Lahontan RWQCB accepted the SWMP and issued coverage under the Phase II permit in 2005 (MWA 2014).

In 2013, a revised permit was approved and adopted by the SWRCB: the Phase II MS4 General Permit Order No. 2013-0001 DWQ. The Permit is applicable to the Mojave River Watershed. SBC developed two Technical Guidance Documents for the Mojave River Watershed in 2016, including for Water Quality Management Plans and for Post Construction Measures Plans. These Technical Guidance Documents are intended to provide guidance to project proponents on regulatory requirements in accordance with the 2013 Permit.

Within the Colorado Regional Board area, no municipalities are large enough to be required to comply with the Phase I or II permit regulations. This document will provide a platform to coordinate and implement efforts across the Region and will align with the MRWG SWMP.

4.2 Mojave IRWMP Regional Water Management Group

The Mojave Regional Water Management Group (RWMG) was formed through a Memorandum of Understanding (MOU) among the following agencies:

- Mojave Water Agency
- Victor Valley Wastewater Reclamation Authority
- MWA Technical Advisory Committee
- Mojave Desert Resource Conservation District
- Morongo Basin Pipeline Commission

As described in the 2014 IRWMP, the RWMG joined together to develop an IRWMP that will:

- Foster coordination, collaboration and communication between agencies responsible for water-related items and interested stakeholders to achieve greater efficiencies, to provide for integration of projects, enhance public services and build public support for vital projects.
- Assist in the development of a comprehensive integrated regional water management plan to facilitate regional cooperation to benefit water supply reliability, water recycling, water conservation, water quality improvement, storm water capture and management, flood management, and environmental and habitat protection and improvements.

This SWRP will be integrated into the Mojave IRWMP upon completion and will contribute to attaining IRWMP goals.

4.3 Stakeholder Involvement

Recognizing that the success of any water management plan depends on the degree of involvement of the stakeholder community, entities in the Mojave Region have a history of collaborating and encouraging stakeholder involvement, including local agencies and nongovernmental organizations. Outreach efforts conducted during the development of the 2014 IRWMP were directed at stakeholders from local water agencies, state and federal agencies, municipalities, San Bernardino County, and local community groups, including environmental organizations, regulatory agencies, development interests, tribal communities, disadvantaged communities and other community associations. The 2014 planning group for the IRWMP included 58 municipal water purveyors, seven municipal and county agencies, fourteen state and federal agencies, and over 30 community interest groups (page 1-11; MWA 2014). Table 4-1 provides an overview of Mojave IRWM stakeholders. This broad stakeholder collaboration and outreach is expected to continue in the Mojave SWRP planning and implementation efforts. Those stakeholders that attended meetings on the SWRP are noted by an “*”. In addition to the attendees denoted in Table 4-1, members outside of the regular TAC group also attended SWRP meetings as shown in Table 4-2.

**Table 4-1
Mojave IRWMP Stakeholders**

Municipal and County Governments	
City of Adelanto	*City of Victorville*
City of Barstow	*San Bernardino County Planning Department*
City of Hesperia	*Town of Apple Valley*
City of Twentynine Palms	Town of Yucca Valley
Municipal Water Purveyors	
Apple Valley Foothill County Water District	Gordon Acres Water Company
Apple Valley Heights County Water District	Green Valley Mutual Water Company
Apple Valley Ranchos Water Company	*Helendale Community Services District*
Apple Valley View Mutual Water Company	*Hesperia Water District*
Arrowbear Park County Water District	Hi Desert Mutual Water Company
Bar H Mutual Water Company	*Hi-Desert Water District*
BarLen Mutual Water Company	Indian Wells Valley Water District
Big Bear Municipal Water District	*Joshua Basin County Water District*
Bighorn-Desert View Water Agency	Jubilee Mutual Water Company
Cedarpines Park Mutual Water Company	Juniper-Riviera County Water District
Center Water Company	Lake Arrowhead Community Services District
Chamisal Mutual Water Company	*Lucerne Valley Mutual Water Company*
City of Adelanto Water District	Lucerne Vista Mutual Water Company
County Service Area 42	Mariana Ranchos County Water District
County Service Area 64	Navajo Mutual Water Company
County Service Area 70 J	*Phelan Piñon Hills Community Services District*
County Service Area 70 W1	Rancheritos Mutual Water Company
County Service Area 70 W4	Rand Communities Water District
Crestline Village Water District	Running Springs Water District
Crestline-Lake Arrowhead Water Agency	Sheep Creek Water Company
Daggett Community Services District	Stoddard Valley Mutual Water Company
Desert Dawn Mutual Water Company	Strawberry Lodge Mutual Water Company
Desert Springs Mutual Water Company	Thunderbird County Water District
Golden State Water Apple Valley North System	Twentynine Palms Water District
Golden State Water Apple Valley South System	Valley-Enchantment Mutual Water Company
Golden State Water Barstow System	Valley View Park Mutual Water Company
Golden State Water Desert View System	Victorville Water District
Golden State Water Lucerne Valley System	West End Mutual Water Company
Golden State Water Company Wrightwood System	*Yermo Community Services District*
Flood Management Agencies and Special Districts	
Morongo Basin Pipeline Commission	
Newberry Community Service District	
San Bernardino County Flood Control District	

Table 4-1 cont.

State and Federal Regulatory and Resource Agencies	
Army Corps of Engineers	*US Bureau of Reclamation*
California Department of Fish and Wildlife	US Department of Agriculture
California Department of Water Resources	US Department of Fish and Wildlife
Colorado River Regional Water Quality	US Environmental Protection Agency
Lahontan Regional Water Quality Control	US Forest Service
State Water Resources Control Board	*US Geological Survey*
US Bureau of Land Management	US Marine Corps Logistics Base (MCLB)
Tribal Community	
San Manuel Band of Mission Indians	
Twenty-Nine Palms Band of Mission Indians	
Disadvantaged Communities	
Adelanto	Lucerne Valley
Barstow	*Newberry Springs*
Daggett	Oro Grande
El Mirage	Pinon Hills
Hinkley	*Pioneertown*
Johnson Valley	Twentynine Palms
Joshua Tree	*Yermo*
Kramer Junction	Yucca Valley
Landers	Portions of Apple Valley, Hesperia, Phelan, and Victorville
Lenwood	
Wastewater Agencies	
Big Bear Area Regional Wastewater Authority	Helendale Community Services District
City of Adelanto	Lake Arrowhead Community Services District
City of Barstow	Marine Corps Logistics Base – Barstow and
City of Victorville	*Victor Valley Wastewater Reclamation Authority*
Crestline Sanitation District	
Electrical Corporations	
Hi-Desert Power Project	Reliant Energy Coolwater
NextEra Energy – Harper Lake solar plant	Sunray Energy, Inc.
NextEra Energy - Kramer Junction solar plant	

Table 4-1 cont.

Community Organizations	
American Association of Retired Persons (AARP)	Lucerne Valley Chamber of Commerce
Spring Valley Lake Association	Newberry Springs / Harvard Property Owners
Adelanto Chamber of Commerce	Oak Hills Chamber of Commerce
Apple Valley Chamber of Commerce	Oro Grande Agriculture
Barstow Chamber of Commerce	Pinon Hills Chamber of Commerce
Daggett Chamber of Commerce	Rancho Las Flores
El Mirage Chamber of Commerce	Rolling Start
Helendale Chamber of Commerce	San Bernardino County Farm Bureau
Hesperia Chamber of Commerce	SAV-AG
Hesperia Kiwanis Club	Silver Lakes Association
High Desert Hispanic Chamber of Commerce	Victor Valley Museum
Jess Ranch Association	Victor Valley National Association for the
Johnson Valley Improvement Association	Victorville African American Chamber
Joshua Tree Chamber of Commerce	Victorville Chamber of Commerce
Joshua Basin Citizens Advisory Group	Yucca Valley Chamber of Commerce
Landers Chamber of Commerce	
Industry Organizations	
Association of California Water Agencies	State Water Contractors, Inc.
Building Industry Association	*Victor Valley Association of Realtors*
Southern California Water Agency	
Others	
Over 35 individuals were notified or directly participated in the IRWM Plan.	

Table 4-2
Attendees at SWRP Meetings Outside of TAC

Municipal and County Governments
Wayne Snively, Newberry Springs Resident
Chuck Bell, Mojave Desert Resource Conservation District
Ellen Johnson, Mojave Desert Resource Conservation District
Richard Selby, California Rural Water Association
Chuck Steinbergs, California Rural Water Association
Dave Miller, Pioneertown resident

4.4 Methods of Community Outreach

There is a history of community involvement in planning documents in the Mojave Region. A goal of public outreach efforts for the IRWMP was to facilitate participation of disadvantaged communities (DACs), local tribes, the general public, and specific audiences such as local ratepayers, developers, locally regulated commercial and industrial stakeholders, and nonprofit

organizations (see Sections 1.2.2.4 through 1.2.2.12, pages 1-15 to 1-20, of the IRWMP). Outreach activities conducted as part of the 2014 IRWMP development included:

- Publishing draft IRWMP sections to facilitate stakeholder review,
- Holding 16 stakeholder meetings and public workshops/meetings, 3 of which were focused on DACs ,
- Developing a project website (<http://www.mywaterplan.com>) to facilitate sharing of information and updates,
- Posting to an email list,
- Publishing a newsletter with important updates about the IRWM planning process and upcoming stakeholder meetings, and
- Providing contact information to provide a mechanism for interested parties to ask questions or offer comments.

Additional examples of community outreach efforts are described in Section 1.2.3 (pages 1-20 to 1-22) of the IRWMP, and environmental justice is discussed in Section 11.6.2 (page 11-10) of the IRWMP.

Given the successful stakeholder and community outreach process implemented during the 2014 IRWMP update, existing outreach mechanisms, such as the website and stakeholder email list, were utilized to encourage participation in the Mojave SWRP. Specifically:

- Input on the content, objectives, and projects for inclusion in the SWRP was sought at six separate TAC meetings
- The draft SWRP was provided for public review on the IRWMP website and public notice was also provided through the MWA website.
- Notice that the draft SWRP was available for review was announced at the TAC meeting and posted to an email list.

Section 5: Identification and Prioritization of Projects

Developing and prioritizing projects is one of the most important aspects of a SWRP. It is in projects where the intent of the plan becomes reality. It is in projects where the potential to use storm water as a resource is realized.

5.1 Project Identification

Projects were identified in three processes: the call for projects conducted for the IRWMP, a new call for projects conducted specifically for this SWRP, and outreach to participants in the Mojave River Watershed Group/MS4 NPDES Permittees.

As part of the IRWMP, a call for projects was issued on July 1, 2013 with project forms due by August 1, 2013. A second call for projects was issued on August 13, 2013 to provide stakeholders with an opportunity to discuss, refine, and further integrate project ideas. A third call for projects was sent on December 17, 2013 to capture potential projects located within areas recently added to the Mojave IRWMP planning region. Over the next two months, stakeholders met to discuss and refine projects. All projects were screened for consistency with IRWMP objectives – those projects not meeting IRWMP objectives were not included in the IRWMP plan. The IRWMP project list was finalized during an IRWMP Stakeholder Meeting in February 2014.

As part of preparation of this SWRP another call for projects took place. The purpose of this call for projects was to capture any new projects developed since February 2014 and to collect updated information on the projects included in the IRWMP. The call for projects was distributed to all IRWMP Stakeholders which included:

- Adelanto, City of
- Agio Real Estate
- Altec Engineering
- Apple Valley Chamber
- Apple Valley Heights County Water District
- Apple Valley Ranchos Water
- Apple Valley, Town of
- Aqua Capital Management
- Bar H Mutual Water Company
- Bar-Len Mutual Water Company
- Barstow Chamber
- Barstow, City of
- Best, Best, Krieger
- Bighorn-Desert View Water
- Building Industry Association
- Center Water Company
- Chevron
- Citizens for a Better Community
- Daggett Chamber of Commerce
- Daggett CSD
- Daily Press Newspaper
- Department of Fish and Game
- Department of Water Resources
- Desert Dawn Mutual Water Company
- Desert Springs Water Company
- Deziq Engineering
- Earth Science Consulting
- El Mirage Chamber of Commerce
- GEI Consultants
- Golden State Water Company

- Helendale CDS
- Helendale Chamber of Commerce
- Hesperia Golf & Country Club
- Hesperia, City of
- Hi Desert Water
- Hi-Desert Medical Center
- Jess Ranch
- Joshua Basin Citizens Advisory
- Joshua Basin Water District
- Jubilee Mutual Water
- Lake Wainani
- Lucerne Valley Chamber of Commerce
- Lucerne Valley Leader Newspaper
- Lucerne Vista Water Company
- Mariana Ranchos County Water District
- Marine Corps
- Mojave Desert Resource Conservation District
- Mountaineer Progress Newspaper
- Natural Resource Conservation Service, Victorville
- Navajo Mutual Water Company
- Newberry CSD
- Newberry Springs Chamber
- Newberry-Harvard Association
- Nissi Agents
- Oro Grande Agriculture
- Phelan Chamber of Commerce
- Phelan Piñon Hills CSD
- Pinon Hills Chamber of Commerce
- Psomas Consulting
- Rancheritos Mutual Water
- San Bernardino County
- San Bernardino County Advanced Planning Division
- San Bernardino County Board of Supervisors
- San Bernardino County Department of Public Health
- San Bernardino County Department of Public Works
- San Bernardino County Local Agency Formation Commission
- San Bernardino County Special Districts
- Sheep Creek Water Company
- Sierra Club/Mojave Group
- Silver Lakes Association
- So & Associates
- Stakeholders (35)
- State Water Resource Control Board -Lahontan
- State Water Resource Control Board-Colorado
- Sunset Breeze Real Estate
- Thunderbird County Water District
- Todd Engineers
- Twentynine Palms, City of
- Twentynine Palms Water District
- United States Army Corps of Engineers
- United States Bureau of Reclamation
- Valley Wide News
- Victor Valley Wastewater Reclamation Authority
- Victorville Water District
- Victorville, City of
- Yermo CSD
- Yucca Valley Chamber
- Z107.7 FM Joshua Tree

The result of the call for project activities was to identify 27 storm water related projects. These projects are summarized in Table 5-1, details are provided in Appendix C.

Table 5-1
Identified Storm Water Projects

Project Title and Lead Agency	Project Description
<p>DRY WELL INSTALLATION PROGRAM Town of Apple Valley</p>	<p>To date approximately 77 shallow dry well structures have been constructed in Apple Valley and are successfully alleviating flooding where they exist. Program will install additional dry wells. The underlying layers of natural gravel and sand absorb water almost as fast as it can be filtered and introduced into the wells. The Town of Apple Valley Dry Well Standard Design calls for a pre-manufactured dry well structure, and is a combination of an inlet treatment/filtration chamber, combined with a second chamber connected to a shallow lined and perforated well or pit that extends down through the surface layer of impervious soils. The structures average between 35 and 40 feet deep, but are only as deep as required to reach sandy gravelly soil. This project would capture water that would pond causing flooding and public nuisance; this project is not intended to capture water that would otherwise flow to downstream users in the Mojave Basin Area.</p>
<p>AMETHYST BASIN San Bernardino Flood Control District</p>	<p>The project consists of the construction of a detention basin located within the City of Victorville in San Bernardino County. The basin consists of an earthen bottom and includes inlet, outlet and transition structures, channels and/or closed conduits, transition structures, wingwalls, headwalls, cut-off walls, basin embankments, emergency spillway, access roadways along tops of the embankments and around the basins and access ramps to the basin floor. The primary purpose would be to attenuate stormflow and prevent flood damage. In addition to storm water attenuation, the site could accommodate recharge of SWP water.</p>
<p>BANDICOOT BASIN San Bernardino Flood Control District</p>	<p>This consists of the construction of a detention basin located within the City of Hesperia Sphere of Influence in unincorporated San Bernardino County. The proposed Bandicoot Basin is addressed in the Hesperia Master Plan of Drainage and is considered a Regional Facility and is a component of an overall effort to reduce the risk of flooding to properties downstream and to enhance public safety. In addition to storm water attenuation, the site could accommodate recharge of SWP water.</p>
<p>DESERT KNOLLS WASH PHASE III San Bernardino County Flood Control District</p>	<p>The purpose of the flood improvements is to provide flood protection to the property adjacent to the wash and to maintain, as much as possible, the integrity of the riparian habitat; sensitive wetland downstream; cultural and biological resources as well as maintain high water quality standards in accordance with the Lahontan Regional Water Quality Control Board.</p>
<p>DONNELL BASIN PHASES I AND II San Bernardino Flood Control District</p>	<p>The project is for the construction of a detention/recharge basin. The project will include the re-construction of existing inlet and outlet channels, basin embankments, basin outlets - emergency spillway and Reinforced Concrete Box (RCB), construction of drainage inlets, access roads 20 feet wide on top of embankments and around the basin, and access ramps 20 feet wide. Donnell Basin is a regional detention facility in accordance with the Twentynine Palms Master Plan of Drainage.</p>

Project Title and Lead Agency	Project Description
RANCHERO BASIN San Bernardino Flood Control District	The Ranchero Basin Project consists of the construction of a detention basin located within the City of Hesperia in San Bernardino County. The proposed Ranchero Basin is addressed in the Hesperia Master Plan of Drainage and is considered a Regional Facility. The basin will intercept and detain flows from its tributary watersheds and subsequently convey flows at a reduced rate. The project will include an embankment (max height of 27'), a spillway, outlet structures, access roads around the basin and access ramps to the basin floor. The Ranchero Basin is a component of an overall effort to reduce the risk of flooding to properties downstream and enhance public safety. In addition to storm water attenuation, the site could accommodate groundwater recharge with SWP water.
FORKS DAM STORM WATER DETENTION Mojave Water Agency	Although extremely variable, on average 41,000 AFY of storm water flow out of Afton Canyon every 6 years. Based on current State Water Project delivery costs this equates to approximately \$16 million worth of "lost" water flowing out of the region to unpopulated areas and desert playas. The project proposes infrastructure that could capture a significant portion of this water and allow it to recharge area groundwater systems. This could be accomplished through various diversion structures along the river or make use of the existing Forks Dam to impound storm water. Impounded storm water could be slowly released from the Forks Dam at a rate that would allow percolation rather than run-off through Afton Canyon.
INDIAN COVE STORMWATER CAPTURE AND RECHARGE PROJECT Twentynine Palms Water District/Joshua Basin Water District	The Department of Water Resources has identified the safe yield for the Indian Cove groundwater basin, limiting production to 1,500 AFY to avoid overdraft. This project would mitigate past over-drafting through storm water capture and recharge and prevent future declines in water levels within this shared basin.
JBWD GRAYWATER AND RAINWATER HARVESTING PROJECT Joshua Basin Water District	Development of design standards and funding of on-site collection facilities for capture of graywater and rainwater by individual property owners located in the JBWD service area. Water collected would be used for gardening and other non-potable uses, reducing dependence on groundwater. Public education is an important component of the project and will include printed materials and demonstration models of collection facilities. Project compliments the District's new imported water recharge project and educates property owners about how graywater and rainwater collection can contribute to increasing local water supplies and conserving groundwater.
JBWD STORMWATER RECOVERY PROJECT Joshua Basin Water District	Project to capture and retain storm water from local arroyos in a new recharge basin to enhance percolation potential into the groundwater basin. Includes studies to determine quantities of storm water that could be recharged, engineering feasibility for retention and percolation and environmental review. Project would increase groundwater basin recharge and minimize downstream impacts.

Project Title and Lead Agency	Project Description
SHEEP CREEK WASH STORM WATER Phelan Piñon Hills Community Services District	The Sheep Creek Wash Storm Water Retention project is intended minimize storm water damage. This conceptual plan would require diverting storm water flows from Sheep Creek Wash to a proposed detention basin. Storm water flows would be monitored at the inlet of the basin. A proposed monitoring well will also be used to monitor static levels.
STORMWATER DEBRIS RETENTION BASIN Silver Lakes Association	Design and construction of a reinforced concrete storm water debris interceptor where Buckthorn Wash bisects the Silver Lakes Golf Course. Approx. size (LWD): 60' x 10' x 6'
STORMWATER RETENTION AND PERCOLATION IN HONDO WASH Bighorn Desert View Water Agency	Project to retain storm flows in Hondo Wash and other drainages in the area to enhance percolation potential into Ames groundwater basin (Pipes Subbasin) and provide a mechanism for flood control that does not currently exist. Includes studies to determine quantities of flow that could be captured annually, engineering feasibility for retention and percolation, and environmental impact overview (Initial Study). Water could be retained behind shallow berms or even dam structures along narrow sections of the wash. Water that is successfully captured and percolated minimizes downstream flood damage from scouring and preserves a resource that is otherwise wasted (flows to dry lake bed for evaporation).
CUSHENBURY FLOOD DETENTION BASIN Mojave Water Agency	Project to capture runoff from the San Bernardino Mountains in the Lucerne Valley Subbasin. Currently, large storm flows drain to dry lake beds in the area that have low percolation rates. Consequently, the majority of water that drains to the lake beds is lost to evaporation and never enters the basin. The project would divert storm flows to detention basins with high rates of percolation to decrease losses from evaporation. This project would capture water lost to evaporation rather than water that would flow downstream to other users in the Mojave Basin Area.
BAJA SUSTAINABILITY INITIATIVE #2 Mojave Water Agency	A major storm event diversion network to capture storm flows and transfer them to retention ponds that could then be disbursed on the south side of the valley to help facilitate recharge and recovery in areas that are unable to receive any natural benefit from storm flows that run down the river. A reduction in the velocity of the storm flows could also greatly assist in the prevention of scouring Cady Riparian Habitat. This would also include investigation into the possible utilization of pit at Kewitt, possible installation of weirs and irrigation channels to divert flood waters to percolation ponds and injection wells.
ORO GRANDE REGION FLOOD CONTROL RIPARIAN PROTECTION Mojave Desert Resource Conservation District	The Mojave River is choked with vegetation causing channel capacities to be exceeded during major flood events. Removing the vegetation and/or excavating the channel would increase the carrying capacity and decrease the flood risk for select areas. The project would design and reinstate a channel(s) through project area to carry storm flows to reduce flooding of improved parcels.
ANTELOPE VALLEY WASH / RECHARGE PONDS City of Hesperia and Mojave Water Agency	The Hesperia Master Plan of Drainage identifies a 65-acre site for a storm water detention basin in the Antelope Valley Wash south of the newly constructed Ranchero Road. In addition to storm water attenuation, the site would be able to accommodate recharge of SWP water upgradient of Hesperia Water District wells.

Project Title and Lead Agency	Project Description
CEDAR STREET DETENTION/RECHARGE BASIN City of Hesperia and Mojave Water Agency	The Hesperia Master Plan of Drainage identifies a 120-acre site for a storm water detention basin at the east end of Cedar Street and southwesterly of the California Aqueduct. In addition to storm water attenuation, the site would be able to accommodate groundwater recharge with SWP water.
MESA LINDA BASIN San Bernardino County Flood Control	The project is construction of a detention basin. The Mesa Linda Basin project would be located in the City of Victorville along the Oro Grande Wash. It is just upstream of the California Aqueduct approximately 0.6 mile west of Interstate 15, 0.7 mile north of Phelan Road and 0.5 mile east of 395 Hwy. In addition to storm water attenuation, the site could accommodate groundwater recharge with SWP water.
OAKS HILLS BASIN San Bernardino County Flood Control District	The project is construction of a detention basin to compliment the proposed Bandicoot Basin. Because of limited property surrounding the Bandicoot Basin this basin is proposed upstream. In addition to storm water attenuation, the site could accommodate groundwater recharge with SWP water.
SENECA BASIN San Bernardino County Flood Control District	The project is construction of a detention/recharge basin. Seneca Basin was identified in the Victorville Master Plan of Drainage (MPD) as a priority facility for flood protection, water quality and water conservation for the High Desert area. In addition to storm water attenuation, the site could accommodate groundwater recharge with SWP water.
TUSSING-JUNIPER BASIN San Bernardino County Flood Control District	The project consists of the construction of a detention basin. The main purpose of Tussing-Juniper Basin is to provide flood control protection to the homes and businesses situated downstream of the basin. It is also an opportunity for imported water recharge. This detention basin was proposed in the Town of Apple Valley Master Plan of Drainage.
ESCONDIDO AVENUE BASIN City of Hesperia	The project consists of constructing an inlet structure to divert water from the East Oro Grande Wash to the Escondido Avenue Basin. The basin will then discharge the collected storm water through a low flow outlet to the existing storm drain channel located north of Sultana Street. The basin system will reduce sediment transport to the Mojave River and eliminate flooding along the East Oro Grande Wash and its surrounding streets.
TEMECULA BASIN City of Hesperia	The project consists of constructing an inlet headwall located along the existing creek and leading into a series of two basins with a combined storage capacity of 39 AF. Water will flow from the 26 AF basin to the 13 AF basin through an outlet spillway. The 13 AF basin will then discharge storm water through a low flow outlet and storm drain connecting to the existing 96" storm drain located approximate 280 feet north of the Arrowhead Lake Road and Mono Drive intersection in the City of Hesperia. The Temecula basin is designed to allow a relatively large flow of storm water to enter and be a discharged in a controlled manner by an outlet structure in the event of a large storm. The basin system will reduce sediment transport to the Mojave River and eliminate flooding along Arrowhead Lake Road.

WALNUT BASIN City of Hesperia	The project consists of constructing an inlet spillway located on the north side of Walnut Avenue and leading into the 37 AF basin through an energy dissipater. The 37 AF basin will then discharge the collected storm water through a low flow outlet and storm drain connecting to the existing 120" storm drain located north of Main Street. The Walnut Avenue basin is designed to allow a relatively large flow of storm water to enter and be a discharged in a controlled manner by an outlet structure in the event of a large storm. The basin system will reduce sediment transport to the Mojave River and eliminate flooding along Walnut Avenue and Main Street.
DEEP CREEK SPILLWAY WETLANDS RESTORATION No Sponsor	Proposal by citizens to evaluate habitat enhancement and recreation opportunities, as well as improvements to water quality through changes in the management of the Deep Creek Spillway to better mimic natural system function in the area downstream of the Mojave Forks Dam. Specific elements would include reviewing how the dam and spillway operate during storm periods, identifying areas where storm water flows could benefit habitat restoration, including wetland restoration and construction of a trail from the wetland area to the Deep Creek Nature Center.
HARPER DRY LAKE MARSH ADDITIONAL SUPPLY No Sponsor	<p>Harper Dry Lake Marsh, located at the edge of one of the largest dry lakebeds in the Mojave Desert, is an important resting site for thousands of migrating birds. The marsh is part of a 475-acre Area of Critical Environmental Concern. The lake as well as the marsh and alkali wetland community adjacent to Harper Dry Lake are considered to hold potential for the discovery of rare and restricted-range plant species and provide an important resting site for thousands of migrating birds and attracts resident wetland birds, migratory waterfowl, shorebirds, and birds of prey.</p> <p>Water levels at the Harper Dry Lake Marsh have dropped dramatically in the last seventy years, primarily due to a long period of agricultural development. During this time, a meager amount of runoff from nearby agricultural fields maintained a small, remnant marsh system on the southeastern corner of the dry lake. This source of water was eliminated by land ownership transfer. At the current time up to 75 AF of water per year are delivered to the lake as part of a mitigation agreement for a nearby solar field. Storm water and dry-weather flows from nearby properties could further benefit the marsh. With a reliable source of water, the marsh at Harper Dry Lake will continue to be one of the most important wetlands in the Mojave Desert.</p> <p>Specific elements of this project would be to (1) evaluate the potential dry weather flows (ag runoff) and storm water flows that could provide a reliable source of water to Harper Dry Lake Marsh , (2) evaluate the infrastructure needed to direct the water and the needed infrastructure, and (3) evaluate the need and opportunities for pre-treatment of the runoff.</p>

5.2 Screening of Projects

All projects/opportunities were vetted against the screening criteria shown in Box 5-1. The screening criteria were used to make sure any projects included in the plan met a set of minimum requirements. All projects listed above meet the screening requirements and are included as SWRP projects.

BOX 5-1
SCREENING CRITERIA

Projects must meet all three criteria to be included in the SWRP.

- 1) Is the project consistent with SWRP goals?
 - a) Does the project further the beneficial use of storm water?
 - b) Is the project consistent with water quality control plans and permits?
 - c) Is the project/will the project be consistent with Pest and Mosquito Abatement Law?
 - d) Is the project consistent with the Mojave IRWMP Goals and Objectives?
 - i) Project is technically feasible. Have similar projects worked in in the area and/or have feasibility studies been performed.
 - ii) Project has sponsor
 - iii) Meets one or more of the following goals: reduce water demand, increase water supply, improve operational efficiency, improve water quality, improve flood management, and practice resource stewardship.
- 2) Does the project have multiple benefits? Project must have at least 2 benefits from these categories:
 - a) Water supply
 - b) Water quality
 - c) Flood management
 - d) Environmental
 - e) Community

5.3 Project Opportunities

Opportunities were specifically sought that had the following benefits:

Augmentation of Local Water Supplies. In the Mojave Basin Area, the Adjudication prohibits projects that can reduce storm water flow that would otherwise go to downstream users. In this area, opportunities for water supply augmentation with storm water are somewhat limited and include joint flood detention basins that are also used for State Water Project recharge, capture of water that would otherwise evaporate, and installation of dry wells to capture water that would typically pond. Examples of these types of projects include:

- Dry Well Installation Program by the Town of Apple Valley
- Antelope Valley Wash/Recharge Ponds in the Hesperia area
- Cedar Street Detention/Recharge Ponds in the Hesperia area
- Cushenbury Flood Detention Basin

Outside of the Mojave Basin Area, water supply can be augmented through capture, use, and recharge of storm water. There are multiple opportunities for use of storm water, including:

- Stormwater Retention and Percolation in Hondo Wash in the Yucca Valley area
- Indian Cove Stormwater Capture and Recharge Project in the Twentynine Palms area
- Greywater and Rainwater Harvesting Project in the Joshua Tree area
- Stormwater Recovery Project in the Joshua Tree area

Source Control of Runoff. Storm water may be treated by specific technology (including being sent to a water reclamation plant), treated through infiltration through a soil column (as when recharged), or managed in a way to prevent erosion. In the areas covered by the Mojave Basin adjudication source control that relies on storm water capture and infiltration would not be possible. But activities to slow water and then meter it out for secondary treatment, such as a bioswale, sand filter, or media filter can be implemented in a manner consistent with the adjudication. These are typically flood control projects that have a secondary benefit of avoiding damage associated with flooding due to limited downstream conveyance capacity. Reduction of flooding, including preventing water from flowing over and/ or inundating roadways, agriculture, and urban areas and reduces pollutant loads of suspended solids, phosphorus, ammonia, nitrate, fecal coliform, copper, lead, and zinc.

A structural best management device, which could be used in any portion of the Mojave area where trash is present in storm water, is a trash screen and the related hydrodynamic separator. Commonly installed ahead of or at the outlet of a catch basin, stainless steel mesh screens work to limit the movement of trash and debris. Similarly, a hydrodynamic separation device screens, separates, and traps debris, sediment, oil and grease from storm water and urban runoff.

Outside of the adjudication area, besides the actions described above, source controls could include surface infiltration basins. There are both surface and subsurface infiltration systems. When placed over alluvial soils, infiltration basins allow storm water to be recharged to groundwater. Infiltration trenches work similarly. An infiltration trench is a shallow impoundment over permeable soil that holds and stores runoff until infiltration occurs and relying on the natural filtering ability of the soil or sand and gravel.

Examples of source control projects include:

- Amethyst Basin and Seneca Basin, a joint MWA and San Bernardino County Flood Control District project. This basin is under construction and will be a dual use facility, used by MWA for groundwater recharge as well as for flood control. This basin is located immediately downstream of extensive areas of single-family home developments, large

superstore shopping complexes that involve expansive parking areas, and Interstate 15. Based on studies on receiving water impacts conducted in Southern California, runoff to these basins likely to contain elevated levels total suspended solids, which would be reduced through settling in the basin.

- Bandicoot Basin, Desert Knolls Wash Phase III, Ranchero, and Tussing-Juniper Basin by the San Bernardino County Flood Control District. These basins would be located downstream of an extensive areas of single family home developments. Based on existing observations and studies on receiving water impacts conducted in Southern California, this runoff is likely to contain elevated levels trash and total suspended solids, which would be reduced through settling in the basin. The Bandicoot Basin design was coordinated between MWA and San Bernardino County Flood Control and when built will act as a flood control facility that can also be used as a recharge facility for SWP water.
- Escondido Avenue and Walnut Avenue Basin by the City of Hesperia. This basin would be located immediately downstream of an extensive areas of single family home developments, large superstore shopping complexes that involve expansive parking areas, and Interstate 15. Based on studies on receiving water impacts conducted in Southern California, this runoff to these basins likely to contain elevated levels total suspended solids, which would be reduced through settling in the basin.

Use of Runoff. Storm water, depending on its quality could be used for irrigation, treated and used for potable and non-potable supply, or used for ornamental landscapes and recreational features. Specific uses include extended retention wetlands, rain barrels, and green roofs.

In an extended retention wetland storm water is used to support a wetland environment including aquatic life. However, extended retention wetlands work best where rainfall or runoff is present year round so that replenishment water is available to maintain the wetland. Extended retention wetlands are also not practical in warm areas where there is a risk of water becoming stagnant and overgrown with algae mats. Given the sporadic nature of rain in the Mojave Region and the warm temperatures, extended retention wetlands may not be an appropriate use of storm water.

A green roof is a roof that partially or completely covered with vegetation and a growing medium and planted. Unfortunately green roofs are difficult to maintain in areas with little annual rainfall and areas with high fire risk and are not be suitable to the Mojave region.

Rain barrels hold roof runoff from rain gutters and downspouts, and store the water for later use. Rain barrels can be styled to compliment adjacent structures. Overall, maintenance requirements are minimal. When designed and installed properly a rain barrel can prevent runoff from small frequency storm events from ever leaving the property and then allows the stored water to be used for on-site landscaping.

At the current time, only one opportunity for direct use of runoff was identified – the Joshua Basin Water District Graywater and Rainwater Harvesting Project. This project would encourage individual property owners located to collect rainwater for gardening and other non-potable uses, reducing dependence on groundwater.

Re-Establishment of Natural Drainage and Treatment Systems. The Deep Creek Spillway Wetlands Restoration Project proposes to use storm water and re-regulation of the Deep Creek Spillway to better mimic the natural flow regime downstream of the Mojave Forks Dam. The return to a more natural regime would support the existing wetland area which in turn would benefit water quality.

Opportunities to Develop, Restore, or Enhance Habitat and Open Space. The Harper Dry Lake Marsh Additional Supply project would use storm water to restore and maintain a remnant marsh within the ACEC and provide important habitat for local and migratory birds.

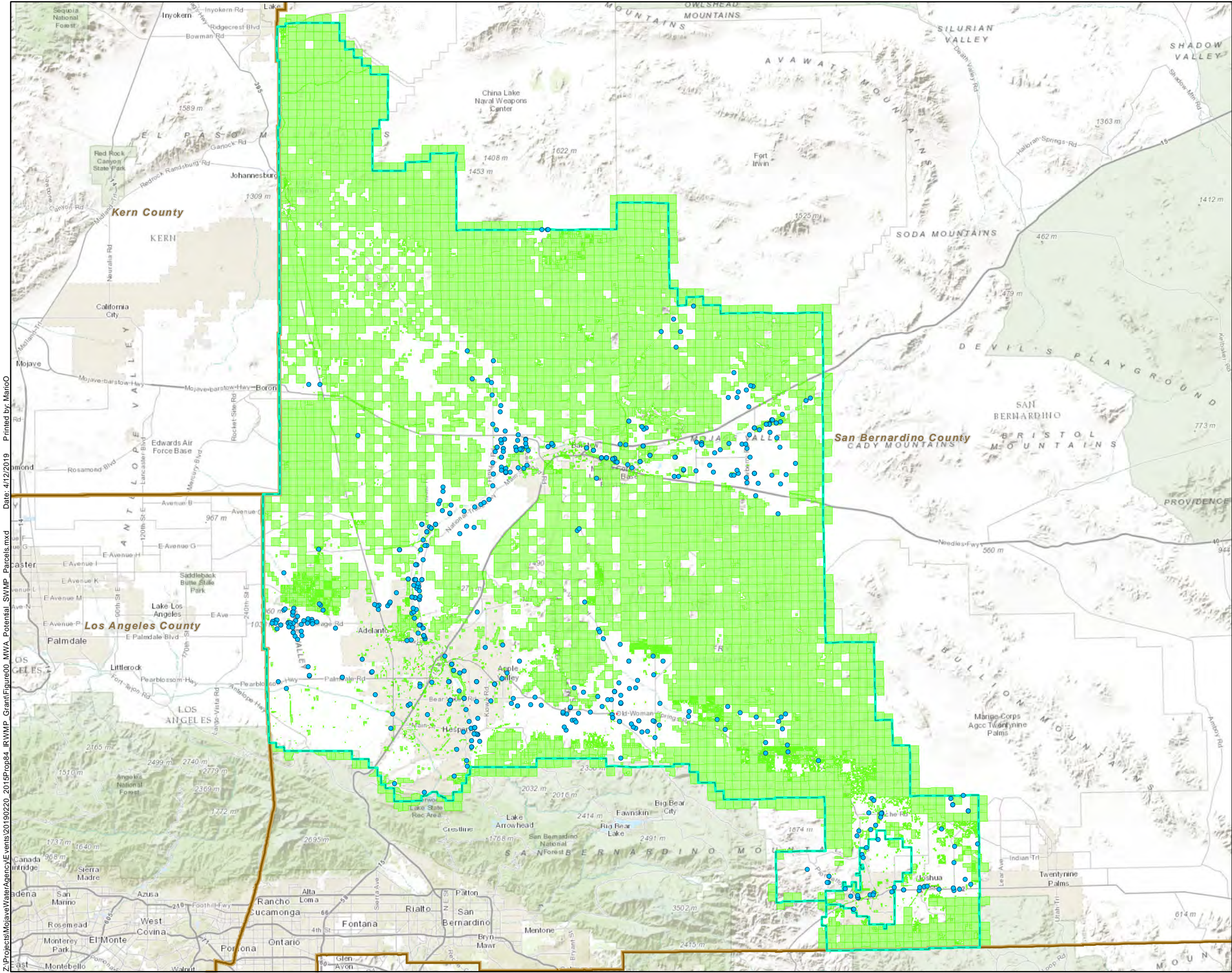
Opportunities to Use Publicly Owned Lands. Figure 5-1 shows publicly owned parcels suitable for storm water management. In Figure 5-1 publicly owned parcels were screened to eliminate parcels as follows:

- Any parcels with urban development (besides parks and open space)
- Parcels within a 100' of a water well
- Parcels with slope greater than 5%
- Parcels in an area of landslide potential
- Parcels in an area of expansive soils

Of the Group 1 projects, those projects that are ready to proceed and where final alignments and locations are known, seven of twelve projects are on publicly owned lands. It is likely that many of the Group 2 and 3 projects would also occur on public land; a significant portion of the Mojave Region is public land (see Figure 2-2).

Identify Design Criteria and Best Management Practices. Guidelines and best management practices to reduce pollutants in storm water, reduce dry weather runoff, and improve storm water and dry weather runoff already existing in the Mojave River Watershed Storm Water Management Program and the San Bernardino County's Hydrology Manual. Examples of these types of activities, which are ongoing within those jurisdictions within the Mojave River Watershed MS4 Phase II Permit include:

- Community cleanup events
- Distribution of tip cards pertaining to the purchase, use, storage and disposal of products to businesses such as automotive businesses, convenience stores, home improvement stores, pool maintenance services, nurseries, paint stores, veterinarians, and schools
- Collection of household hazardous waste
- Construction site storm water runoff control including limits on ground disturbance, proper storage of stockpiles and materials, and delineation of access routes for heavy equipment



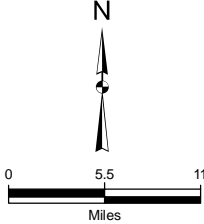
Legend

- Counties California
- Regional Boundaries
- Wells

Parcels Within Agency

Categories

- INSTITUTIONAL
- ELEMENTARY SCHOOL
- FIRE STATION
- FLOOD PLAIN
- PERMANENT OPEN SPACE EASEMENT
- RIGHT OF WAY EASEMENT
- SAN BERNARDINO CO DRAINAGE EASEMENT
- SECONDARY SCHOOL
- VACANT LAND



Kennedy/Jenks Consultants

Mojave Water Agency
Apple Valley, California

**Publicly Owned Parcels Suitable for
Storm Water Management Projects**

- Require post-construction restoration of soils and use of appropriate vegetation
- Perform site planning to minimize removal of native vegetation, preserve natural infiltration capacity and to preserve existing drainage patterns

These actions could be extended to other portions of the Mojave Area. All projects proposed and implemented as part of this SWRP will comply with applicable town, city and county storm water design criteria. The proposed Joshua Basin Water District Graywater and Rainwater Harvesting Project would add criteria and standards for on-site collection facilities for capture of graywater and rainwater by individual property owners.

5.4 Project Prioritization

Box 5-2 documents the method used to prioritize the various identified projects. Over time, as new storm water opportunities are identified, the prioritization process will be used to vet and select projects for implementation. The project solicitation form from the Mojave IRWMP is the method for collecting the necessary data to perform project prioritization. Table 5-2 shows the outcome of the prioritization process. Within Table 5-2 defined projects (projects with cost estimates, some design completed) are categorized as Group 1 or 2 (consistent with the grouping in the IRWM); conceptual projects are defined as Group 3.

BOX 5-2
PRIORITIZATION DECISION TOOL

Projects to be scored in each category.

Urgency (maximum of 6 points possible)

- 6 pts for alleviating a condition that puts people at risk of physical harm
- 4 pts for alleviating a condition that puts resources at risk of irretrievable harm
- 2 pts for reducing risk of property damage
- 0 pts if no reduction in risk due to catastrophic events

Water Supply (maximum of 6 points possible)

- 6 pts for confirmed yield, long-term benefits (>20 years)
- 4 pts for confirmed yield, short-term benefits (< 20 years)
- 2 pts for unconfirmed yield
- 0 pts for no water supply benefits

Water Quality (maximum of 3 points possible)

- 3 pts for projects that address TMDL pollutants of concern
- 2 pts for projects that increase filtration or treatment of runoff
- 0 pts for no water quality benefits

Flood Management (maximum of 3 points possible)

- 3 pts for projects in Mojave Basin Area that take action to reduce damage from floods without reducing the amount of storm water flow that would otherwise go through the naturally occurring hydrologic regime to a downstream user
- 3 pts for projects outside of the Mojave Basin Area that take action to reduce damage from floods
- 0 pts for no flood management benefits

Environmental (maximum of 3 points possible)

- 3 pts for projects that benefit critical habitat as defined by the US Fish and Wildlife Service, Areas of Critical Environmental Concern as defined by the Bureau of Land Management, or wildlife corridors as designated by the California Wilderness Coalition
- 2 pts for projects that benefit threatened or endangered species
- 1 pt for projects that result in improvement in conditions supporting wildlife habitat
- 0 pts for no environmental benefits

BOX 5-2 cont.

Community (maximum of 3 points possible)

- 3 pts for projects that create new recreational opportunities OR create new long-term employment opportunities
- 2 pts for projects that enhance recreational opportunities OR create short-term employment
- 1 pt for projects that improve public understanding of storm water benefits
- 0 pts for no community benefits

Public Parcel (maximum of 3 points possible)

- 3 pts for projects on public parcels
- 0 pts for projects where final location unknown or not on public parcels

Readiness to Proceed (maximum of 3 points possible)

- 3 pts for projects with completed design and CEQA, sources of funding match identified, and occurring on public parcel
- 2 pts for projects with completed design and CEQA and sources of funding match identified
- 1 pt for projects where design has started and rough cost estimates available
- 0 pts for projects without basic planning completed

**Table 5-2
Results of SWRP Project Prioritization**

Project No.	Project Title	Lead Agency/ Organization	Passes Screening Criteria	Group #	Urgency	Water Supply	Water Quality	Flood Management	Environmental	Community	Public Parcel	Readiness to Proceed	Score
S 1	Amethyst Basin	San Bernardino Co. Flood Control District	Y	1/2	6	2	2	3	0	2	3	3	21
S 2	Bandicoot Basin	San Bernardino Co. Flood Control District	Y	1/2	6	2	2	3	0	2	3	2	20
S 3	Desert Knolls Wash Phase III	San Bernardino Co. Flood Control District	Y	1/2	6	2	2	3	0	2	3	1	19
S 4	Donnell Basin Phases I and II	San Bernardino Co. Flood Control District	Y	1/2	6	2	2	3	0	2	3	1	19
S 7	Ranchero Basin	San Bernardino Co. Flood Control District	Y	1/2	6	2	2	3	0	2	3	1	19
S 9	Tussing-Juniper Basin	San Bernardino Co. Flood Control District	Y	1/2	6	2	2	3	0	2	3	0	18

Project No.	Project Title	Lead Agency/ Organization	Passes Screening Criteria	Group #	Urgency	Water Supply	Water Quality	Flood Management	Environmental	Community	Public Parcel	Readiness to Proceed	Score
S 8	Seneca Basin	San Bernardino Co. Flood Control District	Y	1/2	6	2	2	3	0	2	0	0	15
S10	Escondido Avenue Basin	City of Hesperia	Y	1/2	6	2	2	3	0	2	3	1	19
S11	Temecula Basin	City of Hesperia	Y	1/2	6	2	2	3	0	2	0	1	16
S13	Walnut Basin	City of Hesperia	Y	1/2	6	2	2	3	0	2	0	1	16
I 27	Dry Well Installation Program	City of Apple Valley	Y	3	2	2	2	3	0	0	0	1	10
I 1011	Antelope Valley Wash Detention/Recharge Ponds	City of Hesperia/Mojave Water Agency	Y	3	2	2	2	3	0	0	0	1	10

Project No.	Project Title	Lead Agency/ Organization	Passes Screening Criteria	Group #	Urgency	Water Supply	Water Quality	Flood Management	Environmental	Community	Public Parcel	Readiness to Proceed	Score
I 14	Cedar Street Detention/Recharge Basin	City of Hesperia/Mojave Water Agency	Y	3	2	2	2	3	0	0	0	1	10
I 29	Forks Dam Storm Water Detention	Mojave Water Agency	Y	3	2	2	2	3	0	0	0	1	10
I 35	Indian Cove Stormwater Capture and Recharge Project	Twentynine Palms Water District/Joshua Basin Water District	Y	3	2	2	2	3	0	0	0	1	10
I 1009	Oro Grande Region Flood Control - Riparian Protection	Mojave Desert Resource Conservation Dist.	Y	3	2	2	0	3	1	0	0	1	9
I 63	Sheep Creek Wash Storm Water Retention	Phelan Piñon Hills CSD	Y	3	2	2	2	3	0	0	0	0	9
I 64	Silver Lakes Association Stormwater Debris	Silver Lakes Association	Y	3	2	0	0	3	0	0	0	0	5

Project No.	Project Title	Lead Agency/ Organization	Passes Screening Criteria	Group #	Urgency	Water Supply	Water Quality	Flood Management	Environmental	Community	Public Parcel	Readiness to Proceed	Score
I 68	Storm Water Retention and Percolation in Hondo Wash	Bighorn Desert View Water Agency	Y	3	2	2	2	3	0	0	0	0	9
I 41	Storm Water Recovery Project	Joshua Basin Water District	Y	3	2	2	2	3	0	0	0	0	9
I 40	Greywater and Rainwater Harvesting Project	Joshua Basin Water District	Y	3	2	2	2	0	0	0	0	0	6
I 101	Cushenbury Flood Detention Basin	Mojave Water Agency	Y	3	2	2	0	3	0	0	0	0	7
I 1007	Baja Sustainability Initiative #2	Mojave Water Agency	Y	3	2	2	2	3	1	0	0	0	10
I 68	Storm Water Retention and Percolation in Hondo Wash	Bighorn Desert View Water Agency	Y	3	2	2	2	3	0	0	0	0	9

Section 6: Implementation Strategy

As mentioned in previous sections, the Mojave SWRP has been developed by entities with experience developing and utilizing projects and programs to ensure effective implementation of planning efforts. The framework for implementing the SWRP will be the same as the framework for implementation of the IRWMP. The SWRP will be submitted to the Mojave IRWMP (October 5, 2017).

Projects that will benefit storm water management will be implemented by individual agencies and the review and approval processes of these agencies provide many opportunities for input. The projects proposed for implementation vary in their “readiness to proceed” but any projects undertaken by a public entity will need to:

- Be reviewed under the California Environmental Quality Act to ensure that the public and the governing body understand the potential environmental changes that could result from the project before the project is approved; and
- Be reviewed in light of applicable laws and regulation (e.g., Basin Plan, Mojave Basin Adjudication).

Participation in the IRWMP and the SWRP allows for more input from interested stakeholders. For example, projects seeking funding through the IRWMP will have to be presented to the TAC and be accepted into the IRWMP grant application.

MWA and SBC will collaborate with the IRWM group and utilize existing collaboration mechanisms to pursue partnerships and funding, as funding allows, to facilitate implementation of the Mojave SWRP and associated projects and programs. Through the IRWMP the necessary decisions by agencies will be made for plan implementation. No new or altered governmental structures are needed to support plan implementation. The SWRP itself does not require any federal, state or local permits. Project sponsors will be required to get necessary permits before implementing projects. The SWRP and IRWMP encourages local project sponsor to obtain permits early in project planning by giving more points in the prioritization projects to those projects that have permits complete.

6.1 Outreach and Coordination

Coordination with the IRWMP RWMG. The responsibility for implementation of the IRWM Plan lies with the IRWM RWMG. The RWMG makes decisions about updating the IRWMP, calling on and directing stakeholder meetings related to IRWMP implementation, and tracking IRWMP performance. The RWMG will continue to coordinate the regional planning activities of the IRWM Plan as needed, and coordinate with other IRWM planning efforts surrounding the Region, and with State and federal agencies. The RWMG will continue to coordinate with the participants in the Mojave River Watershed Storm Water Management Program to identify multi-benefit projects, including storm water projects.

Continued Meetings of the TAC. The RWMG seeks broad agreement from stakeholders in the implementation of the IRWMP and will do so for implementation of the SWRP. The TAC meets every other month.

Outreach. Outreach for the IRWMP Plan will benefit storm water resources planning. As part of the IRWMP the Region has developed an IRWMP Plan webpage to make available the IRWMP Plan, an up-to-date project list, and information on TAC meetings such as meeting announcements, agendas, and materials. This webpage will also be used to facilitate community outreach, agency coordination and implementation of the SWRP.

6.2 Decision Support Tools

The primary decision support tool is the prioritization method described in Section 5.4, which is based on the method presented in Section 6.2.2 (page 6-5) of the IRWMP (MWA 2014). A standard form has been developed for submitting projects to the Mojave SWRP to ensure applicants provide MWA all data necessary to complete the prioritization process, and to ensure each project and program addresses at least two main benefits from Table 4 of the SWRP Guidelines, in accordance with the SWRP Guidelines.

6.3 Responsibility for Implementation

The responsibility for plan implementation lies with individual project sponsors. However, the IRWMP will track the status of projects and the progress toward meeting goals of the IRWMP and the SWRP. This will occur during regular intervals as the IRWMP is updated (see section 8.3 and 8.4 of the IRWMP for details). Based on this progress, the IRWMP and RWMG will review, update, or modify the IRWMP.

Implementation and plan updates will be performed in conjunction with the MS4 Permittees. Phase II Small MS4s, such as the MRWG, are required to develop an effectiveness assessment approach and/or assess the effectiveness of their programs as a part of their annual reporting. This assessment will prove valuable to identifying progress toward improving and managing storm water. The data gathered as part of the assessment will inform the renewal of the MS4 permit.

6.4 Schedule for Implementation

Implementation of this SWRP largely depends on securing funding for project implementation. Local project sponsors may implement project at any time; however, there are strong incentives for project sponsors to submit their project to the SWRP and the IRWMP:

- To identify ways to integrate their project with other local and regional agencies and thereby gain funding partners
- To qualify for funding from state and federal sources

Near-term funding for SWRP projects includes the SWRCB Storm Water Grant Program (see section 6.5.2.4) and the IRWMP Implementation Grant program (see section 6.5.2.3). Both of these programs are expected to offer funding sometime in the Spring of 2018.

6.5 Funding for Implementation

This section identifies various funding sources and their associated requirements and guidelines to assist with implementation of the SWRP.

6.5.1 Local

In the past, local entities have planned, implemented, and funded construction and operation of storm water-related projects. These funds may be available to fund Plan Projects or to provide the local match.

6.5.1.1 Capital Improvements Program Funding (Revenue Bonds, Certificates of Participation)

Government entities (e.g., water districts, counties and cities) can raise funds by issuing municipal bonds or certificates of participation. Bonds and certificates of participation are governed by an extensive system of laws and regulations. Under these systems, investors provide immediate funding for the promise of later repayment. Generally, bonds and certificates of participation are used for capital improvement projects. In the case of a water district, bonds and certificates are secured by revenues from the water system and by property taxes received by the agency.

6.5.1.2 Property Tax Assessment (Assessed Valuation)

Property taxes are a large source of revenue for water-related projects and agencies in the Region. The San Bernardino County Tax Assessor collects the charges on behalf of various districts. This funding is used for general expenditures, capital improvements, and to service bond and certificate debt.

6.5.1.3 User Fees

For water agencies, funding for operation and maintenance of water-related projects often comes from user fees, which are charges for water delivered to a home or charges for wholesale water supplies. In addition to these fees, many water agencies also charge “hook-up” or “connection” fees – charges for providing facilities to provide water services to a new development. These fees are also known as “facility capacity fees.” Facility capacity fee revenue is difficult to forecast due to the unpredictable timing of development activity. Development activity depends on real estate demands, the regional economy, and land use planning activity.

6.5.2 State

Potential funding for SWRP implementation may be available through various State programs, including Propositions 1.

6.5.2.1 Proposition 1

The Water Quality, Supply, and Infrastructure Improvement Act of 2014 (Proposition 1) authorizes \$7.545 billion in general obligation bonds to fund ecosystems and watershed protection and restoration, water supply infrastructure projects, including surface and groundwater storage, and drinking water protection. Proposition 1 will be implemented by many state agencies, including the California Water Commission, the Department of Water Resources, State Water Resources Control Board, the Wildlife Conservation Board, and the California Department of Fish and Wildlife. Specific grant funding programs available under Proposition 1 are highlighted below:

6.5.2.2 Department of Water Resources – Sustainable Groundwater Planning (SGWP) Grant Program

DWR provides grants to support local groundwater planning efforts. Of this amount, \$50 million is available for technical and direct assistance and grants to local agencies for groundwater sustainability planning and related projects. Eligible applicants include public agencies, non-profit organizations, public utilities, federally recognized Indian tribes, state Indian tribes listed on the Native American Heritage Commission's Tribal Consultation list, and mutual water companies. Two rounds of SGWP grants are anticipated, one in August 2017 and one in January 2018.

6.5.2.3 Department of Water Resources – IRWMP Grant Program

DWR offers grants for projects that assist local public agencies to meet the long-term water needs of the State including the delivery of safe drinking water and the protection of water quality and the environment. Proposition 1 allocated \$510 million to integrated regional water management planning and implementation grants; of this amount, \$63 million is earmarked for the Santa Ana Watershed area. Two rounds of implementation grants are anticipated, the first in Spring 2018. Eligible implementation grant projects must be part of integrated regional water management plans. Under current Guidelines, projects eligible for integrated regional water management plan funding include:

- Programs for water supply reliability, water conservation, and water use efficiency
- Storm water capture, storage, treatment, and management
- Removal of invasive non-native plants, 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

- Water banking, water exchange, water reclamation, and improvement of water quality
- Planning and implementation of multipurpose flood control programs that: protect property; improve water quality, storm water capture and percolation; and protect or improve wildlife habitat
- Watershed management planning and implementation
- Demonstration projects to develop new drinking water treatment and distribution methods

6.5.2.4 State Water Resources Control Board – Storm Water Grant Program

Proposition 1 authorized \$200 million in grants for this program. This grant program targets multi-benefit storm water management projects including green infrastructure, rainwater and storm water capture, and storm water treatment facilities, with the intent to reduce and prevent storm water contamination of rivers, lakes, and streams. The second round of Storm Water Grant Program funding is anticipated sometime in 2018.

6.5.2.5 California Natural Resources Agency – California Urban Rivers Grant Program

Grant program for projects that enhance multi-benefit watersheds and urban rivers within urban watersheds that increase regional and local water self-sufficiency. Projects must meet at least two of the following five statutory conditions:

- Promote Groundwater Recharge and Water Reuse.
- Reduce Energy Consumption.
- Use Soils, Plants, and Natural Processes to Treat Runoff.
- Create, or Restore Native Habitat.
- Increase Regional and Local Resiliency and Adaptability to Climate Change. Projects that exclusively fulfill mitigation requirements are not eligible.

Proposition 1 allocated over \$18 million to this program, one grant round has passed and a second round is anticipated in Fall 2017.

6.5.3 Other

6.5.3.1 Department of Water Resources - Flood Control Subventions Program

DWR provides financial assistance to local agencies implementing federally authorized flood control projects and watershed protection flood prevention projects authorized by the Natural Resources Conservation Service. The percentage of the state cost share for reimbursable costs ranges from 50 to 70 percent.

6.5.3.2 California Infrastructure and Economic Development Bank - Infrastructure State Revolving Fund

The California Infrastructure and Economic Development Bank, also known as I-Bank, provides financing to local municipal entities for construction and/or repair of publicly owned water supply, treatment and distribution systems, and drainage, and flood control facilities. In addition to water-related projects, loans are available for public infrastructure projects that include parks and recreational facilities and environmental mitigation.

6.5.4 Federal

This section includes a discussion of funds available through various federal programs.

6.5.4.1 US Bureau of Reclamation - WaterSMART Grant Programs

This grant program is intended to fund collaborative local projects that improve water conservation and management through advanced technology and conservation markets. Through this program, federal funding is provided to irrigation and water districts for up to 50 percent of the cost of projects involving conservation, efficiency and water marketing. Eligible applicants include irrigation and water districts and state governmental entities with water management authority. Applicants must be located in the western US (California is an eligible area). Applicants do not have to be part of a Reclamation project but proposals with a connection to Reclamation will receive more weight in the evaluation process. Past and proposed programs have included Water and Energy Efficiency Grants, Advanced Water Treatment Pilot and Demonstration Projects, and Grants to Develop Climate Analysis Tools. Funding opportunities vary depending on available program funding.

6.5.4.2 Federal Emergency Management Agency – Hazard Mitigation Grant Program

Under the Hazard Mitigation Grant Program FEMA offers grants up to \$3 million for projects that reduce the risk of loss of life and property from future disasters, including flood risk mitigation.

Section 7: References

- California Regional Water Quality Control Board Colorado River Basin Region (Colorado River RWQCB). 1995. *Water Quality Control Plan, Colorado River Basin – Region 7*. March 31.
http://www.waterboards.ca.gov/coloradoriver/water_issues/programs/basin_planning/
- California Regional Water Quality Control Board Lahontan Region (Lahontan RWQCB). 1995. *Water Quality Control Plan for the Lahontan Region*. March 31. Amendments effective August 1995 through September 10, 2015.
http://www.waterboards.ca.gov/lahtontan/water_issues/programs/basin_plan/references.shtml
- Crestline-Like Arrowhead Water Agency. 2011. 2010 Urban Water Management Plan. August.
- Department of Water Resources, California (DWR). 2013. Public Review Draft California Water Plan Update 2013. CA Department of Water Resources, Sacramento, CA.
- Lake Arrowhead Community Services District. 2016. 2015 Urban Water Management Plan. June.
- Mojave Water Agency (MWA) 2016. 2015 Urban Water Management Plan.
https://www.mojavewater.org/files/UWMP_Report_Final_Adopted20160609_uj0kzpf.pdf
- _____. 2014. *Final Mojave Integrated Regional Water Management Plan*. Prepared by Kennedy/Jenks Consultants. June. <http://www.mywaterplan.com/irwm-plan-documents.html>
- Mojave River Watershed Group (MRWG). 2014. Small Municipal Separate Storm Sewer System General Permit, Permit Year 1 Annual Report. October
- _____. 2012. Mojave River Watershed Group Small Municipal Separate Storm Sewer System General Permit Waste Discharge Identification Number 6B336SM40301 Fiscal Year 2011-12 Annual Report. Prepared by California Watershed Engineering. Anaheim, CA. September 7. http://www.sbcounty.gov/dpw/mojave_river/pdf/2012-09-10MRWG2011-12AnnualReport.PDF
- _____. 2003. *Storm Water Management Program (SWMP) for the Mojave River Watershed*. August. http://www.waterboards.ca.gov/water_issues/programs/swmp/mojave_swmp.pdf
- San Bernardino County (SBC). 1986. *Hydrology Manual*. August.
<http://cms.sbcounty.gov/dpw/FloodControl/WaterResources.aspx>
- State Water Resources Control Board (State Water Board). 2015. *Storm Water Resource Plan Guidelines*. December 15.

http://www.waterboards.ca.gov/water_issues/programs/grants_loans/swgp/docs/prop1/swrp_finalguidelines_dec2015.pdf

Twentynine Palms Water District. 2016. Amended 2015 Urban Water Management Plan. December.

Referenced Cited in MWA 2014:

Bureau of Land Management (BLM). 2011a. *Afton Canyon Natural Area*.
<http://www.blm.gov/ca/st/en/fo/barstow/afton.html>. Accessed on December 10, 2013.

BLM. 2008. *Rand Mountains Management Area*. Education and Permit Program Map.
http://www.blm.gov/pgdata/etc/medialib/blm/ca/pdf/pdfs/ridgecrest_pdfs.Par.12750.File.dat/RMMA_MapBrochure_1007.pdf. Accessed on April 23, 2013.

BLM. 2005. *West Mojave Plan* - Vol.1 Chapter 1 of Proposed Plan/Final EIS/EIR.

California Energy Commission (CEC). 2012. *Desert Renewable Energy Conservation Plan – Description and Comparative Evaluation of Draft DRECP Alternatives*, Appendix D. December.
http://www.drecp.org/documents/docs/alternatives_eval/Appendices/Appendix_D/. Accessed on December 9, 2010.

Hardt, W.F. 1971. *Hydrologic Analysis of Mojave River Basin, California, Using Electric Analog Model*. US Geological Survey, US Geological Survey, Menlo Park, CA. August.

Lewis, R.E. 1972. Ground-water Resources of the Yucca Valley-Joshua Tree Area. San Bernardino County, California. USGS Open-File Report.

Mendez, G.O. and A.H. Christensen. 1997. Regional Water Table (1996) And Water-Level Changes In The Mojave River, The Morongo, And The Fort Irwin Ground-Water Basins, San Bernardino County, California. U.S. Geological Survey Water-Resources Investigations Report 97-4160. 34 p.

National Park Service (NPS). 2013. Joshua Tree National Park.
<http://www.nps.gov/jotr/index.htm>

Sonoran Institute. 2009. *Morongo Basin Alternative Futures*.
<http://www.sonoraninstitute.org/morongo-basin-alternative-futures.html>. Accessed on April 25, 2013.

Stamos, C.L., Martin, P., Nishikawa, T., and Cox, B.F. 2001 *Simulation of Ground-Water Flow in the Mojave River Basin, California*. Water-Resources Investigations Report 01-4002 Version 3, US Geological Survey, Sacramento, CA.

US Fish and Wildlife Service (USFWS). 2011. *Revised Recovery Plan for the Mojave Population of the Desert Tortoise*.

Appendix A

Storm Water Resource Plan Checklist and Self-Certification

Storm Water Resource Plan Checklist and Self-Certification

The following should be completed and submitted to the State Water Resources Control Board Division of Financial Assistance in support of a storm water resource plan /functionally equivalent plan. The documents submitted, including this checklist, will be used to determine State Water Board concurrence with the Storm Water Resource Plan Guidelines and statutory water code requirements.

When combining multiple documents to form a functionally equivalent Storm Water Resource Plan, submit a cover letter explaining the approach used to arrive at the functionally equivalent document. The cover letter should explain how the documents work together to address the Storm Water Resource Plan Guidelines.

STORM WATER RESOURCE PLAN GENERAL CONTACT INFORMATION	
Contact Info: Name Phone Number Email	Lance Eckhart, P.G. Phone: (760) 946-7015 <i>leckhart@mojavewater.org</i>
Date Submitted to State Water Resource Control Board:	
Regional Water Quality Control Board:	Lahontan and Colorado River Regional Water Quality Control Board
Title of attached documents (expand list as needed):	<ol style="list-style-type: none"> 1. Final Mojave Integrated Regional Water Management Plan 2. Mojave River Watershed Storm Water Management Program 3. Mojave Basin Area Judgement 4. Water Quality Control Plan for the Lahontan Region 5. Water Quality Control Plan for the Colorado River Basin Region 6. Mojave River Watershed Group Small Municipal Separate Storm Sewer System General Permit Waste Discharge Identification Number 6B336SM40301 Annual Report. 7. Mojave River Watershed Technical Guidance Document for Water Quality Management

STORM WATER RESOURCE PLAN INFORMATION	
Storm Water Resource Plan Title:	Mojave Region Functionally Equivalent Stormwater Resources Plan
Date Plan Completed/Adopted:	September 28, 2017, revised April 15, 2019 and revised January 28, 2020
Public Agency Preparer:	San Bernardino County Department of Public Works, Mojave Water Agency
IRWM Submission:	October 5, 2017
Plan Description:	Functional Equivalent

Appendix A: Checklist and Self-Certification

Checklist Instructions:

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

A. Does the Storm Water Resource, or functional equivalent Plan meet the provision (Y/N)?

B. Under References, enter:

1. Document name (or document(s)) that contain the requested information;
2. The chapter/section, and page number(s) 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, as well as any updates; and
5. Where each document can be accessed¹ (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)		
Y	Plan identifies watershed and subwatershed(s) for storm water resource planning.	10565(c) 10562(b)(1) 10565(c)
References: <ul style="list-style-type: none"> The Mojave Region SWRP (this SWRP) Section 2, pages 2-1 to 2-25 Mojave Water Agency. 2014. Final Mojave Integrated Regional Water Management Plan. June. http://www.mywaterplan.com/irwm-plan-documents.html. Section 1.1.1, pages 1-1, 1-2 and Figure 1-3 on page 1-5. 		
Y	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.	
References: <ul style="list-style-type: none"> The Mojave Region SWRP (this SWRP) Section 2, page 2-1 Mojave Water Agency. 2014. Final Mojave Integrated Regional Water Management Plan. June. http://www.mywaterplan.com/irwm-plan-documents.html. Section 1.1.1 pages 1-1 to 1-2; Figure 1-3 on page 1-5; and Section 2.2, pages 2-1 to 2-3. 		
Y	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: <ul style="list-style-type: none"> The Mojave Region SWRP (this SWRP) Section 2, page 2-1. 		

¹ All documents referenced must include a website address. If a document is not accessible to the public electronically, the document must be included in the form of an electronic file on a compact disk or other electronic transmittal tool.

WATERSHED IDENTIFICATION (GUIDELINES SECTION VI.A)

Y	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 file);
References: <ul style="list-style-type: none"> The Mojave Region SWRP (this SWRP) Sections 2.1 to 2.4, pages 2-1 to 2-13 Mojave Water Agency. 2014. Final Mojave Integrated Regional Water Management Plan. June. http://www.mywaterplan.com/irwm-plan-documents.html. Sections 2.2 to 2.10, pages 2-1 to 2-76. 	
Y	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 (i.e., impaired waters list);
References: <ul style="list-style-type: none"> The Mojave Region SWRP (this SWRP) Section 3.2, pages 3-3 to 3-5. 	
Y	Plan describes the general quality and identification of surface and ground water resources within the watershed (preferably provided in a geographic information system file);
References: <ul style="list-style-type: none"> The Mojave Region SWRP (this SWRP) Section 2.1 pages 2-1 to 2-3; Section 2.4 pages 2-7 to 2-13, and Section 2.5 pages 2-13 to 2-17. 	
Y	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: <ul style="list-style-type: none"> The Mojave Region SWRP (this SWRP) Section 2.6 pages 2-17 to 2-18. 	
Y	Plan describes native habitats, creeks, lakes, rivers, parks, and other natural or open space within the sub-watershed boundaries; and
References: <ul style="list-style-type: none"> The Mojave Region SWRP (this SWRP) Section 2.7 pages 2-18 to 2-25. 	
Y	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: <ul style="list-style-type: none"> The Mojave Region SWRP (this SWRP) Section 3.1, Box 3-1, page 3-2. 	

WATER QUALITY COMPLIANCE (GUIDELINES SECTION V)

Y	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)
<p>References:</p> <ul style="list-style-type: none"> The Mojave Region SWRP (this SWRP) Section 3.1, pages 3-1 to 3-2. Mojave River Watershed Group. 2003. Storm Water Management Program (SWMP) for the Mojave River Watershed. August. http://www.waterboards.ca.gov/water_issues/programs/stormwater/swmp/mojave_swmp.pdf. Section 6.3, pages 6-4 to 6-16; Section 7.6, page 7-14. California Regional Water Quality Control Board Lahontan Region. 1995. Water Quality Control Plan for the Lahontan Region. March 31. Amendments effective August 1995 through September 10, 2015. http://www.waterboards.ca.gov/lahtontan/water_issues/programs/basin_plan/references.shtml. Chapter 4.3, page 4.3-1. 		
Y	Plan 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)
<p>References:</p> <ul style="list-style-type: none"> The Mojave Region SWRP (this SWRP) Section 3.3 pages 3-3 to 3-5 and Appendix B Mojave Water Agency. 2014. Final Mojave Integrated Regional Water Management Plan. June. http://www.mywaterplan.com/irwm-plan-documents.html. Section 3.4.1, pages 3-17 to 3-19; Table 3-12 on page 3-23; Section 3.5.3, pages 3-35 to 3-36; Section 3.5.3.3 on page 3-36; Section 5.2.4.4, pages 5-29 to 5-30; Section 5.2.4.6 on page 5-30; Table 10-3 on pages 10-17 to 10-18; Section 10.3.1.4.3 on page 10-22; Section 10.3.2.1, pages 10-22 to 10-23. County of San Bernardino. 2016. Mojave River Watershed Technical Guidance Document for Water Quality Management Plans. April. http://cms.sbcounty.gov/Portals/50/Land/MojaveWatershed/MojaveWatershedTechnicalGuidanceWaterQualityManagemenPlans.pdf?ver=2016-04-05-102344-637. Section 3.3 pages 20-25. 		
Y	Plan is consistent with all applicable waste discharge permits.	10562(b)(6)
<p>References:</p> <ul style="list-style-type: none"> The Mojave Region SWRP (this SWRP) Section 3.5, pages 3-6 to 3-7; Section 5.2, Box 5-1 pages 5-7 to 5-8. (projects in plan must be consistent with water quality control plans and permits) Mojave Water Agency. 2014. Final Mojave Integrated Regional Water Management Plan. June. http://www.mywaterplan.com/irwm-plan-documents.html. Section 1.1.4.2, page 1-8; Table 10-3, 		

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

Y	Local agencies and nongovernmental organizations were consulted in Plan development.	10565(a)
<p>References:</p> <ul style="list-style-type: none"> The Mojave Region SWRP (this SWRP) Section 4.4, page 4-5. Mojave Water Agency. 2014. Final Mojave Integrated Regional Water Management Plan. June. http://www.mywaterplan.com/irwm-plan-documents.html. Section 1.2, pages 1-11 to 1-20; Section 1.2.2, page 1-11. 		
Y	Community participation was provided for in Plan development.	10562(b)(4)
<p>References:</p> <ul style="list-style-type: none"> The Mojave Region SWRP (this SWRP) Section 4.4 on pages 4-5 and 4-6. Mojave Water Agency. 2014. Final Mojave Integrated Regional Water Management Plan. June. http://www.mywaterplan.com/irwm-plan-documents.html. Section 1.2, pages 1-11 to 1-20; Section 1.2.3, pages 1-20 to 1-22; Sections 1.2.2.4 through 1.2.2.12, pages 1-15 to 1-20; Section 11.6.2, page 11-10. 		

Y	Plan includes description of the existing integrated regional water management group(s) implementing an integrated regional water management plan.
References: <ul style="list-style-type: none"> The Mojave Region SWRP (this SWRP) Section 4.2 and Section 4.3, pages 4-1 to 4-5. Mojave Water Agency. 2014. Final Mojave Integrated Regional Water Management Plan. June. http://www.mywaterplan.com/irwm-plan-documents.html. Section 1, pages 1-1 to 1-26. 	
ORGANIZATION, COORDINATION, COLLABORATION (GUIDELINES SECTION VI.B)	
Y	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: <ul style="list-style-type: none"> The Mojave Region SWRP (this SWRP) Section 4.1 page 4-1. 	
N	Plan includes identification of nonprofit organizations working on storm water and dry weather resource planning or management in the watershed.
References: <ul style="list-style-type: none"> No nonprofit organizations with a specific focus of stormwater and dry weather resources planning were identified in the watershed. 	
Y	Plan includes identification and discussion of public engagement efforts and community participation in Plan development.
References: <ul style="list-style-type: none"> The Mojave Region SWRP (this SWRP) Section 1.1, page 1-5; Section 4.4 page 4-5 to 4-6. 	
Y	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: <ul style="list-style-type: none"> The Mojave Region SWRP (this SWRP) Section 6 pages 6-1. 	
Y	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: <ul style="list-style-type: none"> The Mojave Region SWRP (this SWRP) Section 6 pages 6-1 to 6-6. 	
Y	Plan describes the relationship of the Plan to other existing planning documents, ordinances, and programs established by local agencies.
References: <ul style="list-style-type: none"> The Mojave Region SWRP (this SWRP) Section 1.1 pages 1-1 to 1-5. 	
NA	(If applicable) Explanation of why individual agency participation in various isolated efforts is appropriate.
References: Not applicable	

QUANTITATIVE METHODS (GUIDELINES SECTION VI.C)	
Y	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: <ul style="list-style-type: none"> The Mojave Region SWRP (this SWRP) Section 5.2 and Section 5.3 pages 5-1 pages 5-7 to 5-9 and Section 5.4 pages 5-8 to 5-15. 	
N	For water quality project analysis (section VI.C.2.a) Plan includes an analysis of how each project and program complies with or are 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: A screening criteria for inclusion in the SWRP is consistency with applicable water quality regulations, including the NPDES permit. Before implementation all projects will be required to get the necessary permits. Because many of the projects in the SWRP are still in the design phase and it not possible to perform meaningful modeling. It is not necessary to perform modeling to ensure compliance with permits nor is it possible at this stage of project development.	
N	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: Many of the projects in the Mojave Region SWRP are still in the design phase and it not possible to perform meaningful analysis at this time.	
N	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: Many of the projects in the Mojave Region SWRP are still in the design phase and it not possible to perform meaningful analysis at this time.	
Y	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: <ul style="list-style-type: none"> The Mojave Region SWRP (this SWRP) Section 5.1 pages 5-3 to 5-7; Section 5.3 pages 5-7 to 5-8; Section 5.4 pages 5-8 to 5-18. 	

	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: <ul style="list-style-type: none"> Mojave Water Agency. 2014. Final Mojave Integrated Regional Water Management Plan. June. http://www.mywaterplan.com/irwm-plan-documents.html. Section 10.3 pages 10-13 to 10-15. 	

IDENTIFICATION AND PRIORITIZATION OF PROJECTS (GUIDELINES SECTION VI.D)		
Y	Plan opportunities are identified to augment local water supply through groundwater recharge or storage for beneficial use of storm water and dry weather runoff.	10562(d)(1)
References: <ul style="list-style-type: none"> The Mojave Region SWRP (this SWRP) Section 5.1 pages 5-3 to 5-6 and Section 5.3 pages 5-7 to 5-8. Mojave Water Agency. 2014. Final Mojave Integrated Regional Water Management Plan. June. http://www.mywaterplan.com/irwm-plan-documents.html . Section 6.3 (page 6-8 to 6-9); Table 6-1 (page 6-9); Appendix D. 		
Y	Plan opportunities are identified for source control for both pollution and storm water and dry weather runoff volume, onsite and local infiltration, and use of storm water and dry weather runoff.	10562(d)(2)
References: <ul style="list-style-type: none"> The Mojave Region SWRP (this SWRP) Section 5.1 pages 5-3 to 5-6 and Section 5.3 pages 5-7 to 5-8. Mojave Water Agency. 2014. Final Mojave Integrated Regional Water Management Plan. June. http://www.mywaterplan.com/irwm-plan-documents.html . Table 6-1 page 6-9 and Appendix D. Mojave River Watershed Group. 2003. Storm Water Management Program (SWMP) for the Mojave River Watershed. August. http://www.waterboards.ca.gov/water_issues/programs/stormwater/swmp/mojave_swmp.pdf. Section 6.2 pages 6-2 to 6-5. 		
Y	Plan projects are identified that reestablish natural water drainage treatment and infiltration systems, or mimic natural system functions to the maximum extent feasible.	10562(d)(3)
References: <ul style="list-style-type: none"> The Mojave Region SWRP (this SWRP) Section 5.1 pages Section 5.1 pages 5-3 to 5-6 and Section 5.3 pages 5-7 to 5-8. Mojave Water Agency. 2014. Final Mojave Integrated Regional Water Management Plan. June. http://www.mywaterplan.com/irwm-plan-documents.html . Table 6-1 page 6-9 and Appendix D. 		

Y	Plan opportunities are identified 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: <ul style="list-style-type: none"> The Mojave Region SWRP (this SWRP) Section 5.1 pages 5-3 to 5-6 and Section 5.3 pages 5-7 to 5-8. Mojave Water Agency. 2014. Final Mojave Integrated Regional Water Management Plan. June. http://www.mywaterplan.com/irwm-plan-documents.html . Table 6-1 page 6-9 and Appendix D. 		
Y	Plan opportunities are identified 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: <ul style="list-style-type: none"> The Mojave Region SWRP (this SWRP) Section 5.1 pages 5-3 to 5-6 and Section 5.3 pages 5-7 to 5-8. Mojave Water Agency. 2014. Final Mojave Integrated Regional Water Management Plan. June. http://www.mywaterplan.com/irwm-plan-documents.html . Figure 2-3 page 2-6, Table 2-1 page 2-4. 		

IDENTIFICATION AND PRIORITIZATION OF PROJECTS (GUIDELINES SECTION VI.D)		
Y	Plan for new development and redevelopments (if applicable): 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 are identified.	10562(d)(6)
References: <ul style="list-style-type: none"> The Mojave Region SWRP (this SWRP) Section 5.1 pages 5-3 to 5-6 and Section 5.3 pages 5-8 to 5-9. Mojave River Watershed Group. 2003. Storm Water Management Program (SWMP) for the Mojave River Watershed. August. http://www.waterboards.ca.gov/water_issues/programs/stormwater/swmp/mojave_swmp.pdf. Section 5 pages 5-1 to 5-5, Section 6 pages 6-1 to 6-17. 		
Y	Plan appropriate quantitative methods are used 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: <ul style="list-style-type: none"> The Mojave Region SWRP (this SWRP) Section 5.4 pages 5-13 to 5-19. 		
Y	<i>Overall:</i> Plan the 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: <ul style="list-style-type: none"> The Mojave Region SWRP (this SWRP) Section 5.4 pages 5-13 to 5-19. 		
Y	<i>Multiple benefits:</i> Plan ensures 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: <ul style="list-style-type: none"> The Mojave Region SWRP (this SWRP) Section 5.2 pages 5-7 and 5-8 and Section 5.4 pages 5-13 to 5-19. 		

IMPLEMENTATION STRATEGY AND SCHEDULE (GUIDELINES SECTION VI.E)		
Y	Plan identifies resources for Plan implementation are identified, 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: <ul style="list-style-type: none"> The Mojave Region SWRP (this SWRP) Section 6 pages 6-1 to 6-6. 		

Y	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: <ul style="list-style-type: none"> The Mojave Region SWRP (this SWRP) Section 5.4 pages 5-13 to 5-19 and Appendix C. Mojave Water Agency. 2014. Final Mojave Integrated Regional Water Management Plan. June. http://www.mywaterplan.com/irwm-plan-documents.html. Section 8.0 pages 8-1 to 8-14. 		
Y	Plan the development of appropriate decision support tools and the data necessary to use the decision support tools is identified.	10562(d)(8)
References: <ul style="list-style-type: none"> The Mojave Region SWRP (this SWRP) Section 6 pages 6-1 to 6-6. Mojave Water Agency. 2014. Final Mojave Integrated Regional Water Management Plan. June. http://www.mywaterplan.com/irwm-plan-documents.html. Section 6.2.2 page 6-5, Section 6.2.3 page 6-5, Table 4-2 page 4-17; Appendix D.2c. 		
Y	Plan implementation strategy is described, including: <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> The Mojave Region SWRP (this SWRP) Section 6 pages 6-1 to 6-6. 		
Y	Applicable IRWM plan: Plan upon development, the Plan will be submitted to the applicable integrated regional water management (IRWM) group for incorporation into the IRWM plan.	10562(b)(7)
References: <ul style="list-style-type: none"> The Mojave Region SWRP (this SWRP) Section 6 page 6-1. 		
Y	Plan describes how implementation performance measures will be tracked.	
References: <ul style="list-style-type: none"> The Mojave Region SWRP (this SWRP) Section 6.3 page 6-2. 		
Y	Adaptive Management	
References: <ul style="list-style-type: none"> The Mojave Region SWRP (this SWRP) Section 6.3 page 6-2. 		

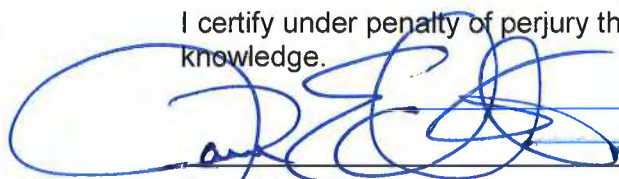
EDUCATION, OUTREACH, PUBLIC PARTICIPATION (GUIDELINES SECTION VI.F)

Y	Outreach and Scoping: Community participation is provided for in Plan implementation.	10562(b)(4)
References: <ul style="list-style-type: none"> The Mojave Region SWRP (this SWRP) Section 4.4 pages 4-5 to 4-6 and Section 6.1 page 6-1. Mojave Water Agency. 2014. Final Mojave Integrated Regional Water Management Plan. June. http://www.mywaterplan.com/irwm-plan-documents.html. Section 1.2.3 pages 1-20 to 1-22, Section 10.4 pages 10-26 to 10-36, Table 10-5 pages 10-28 to 10-33, Section 8.2.2 page 8-3; Section 8.2.4 page 8-4. 		
Y	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 of the Plan.	
References: <ul style="list-style-type: none"> The Mojave Region SWRP (this SWRP) Section 4.4 pages 4-5 to 4-6 and Section 6.1 page 6-1. Mojave Water Agency. 2014. Final Mojave Integrated Regional Water Management Plan. June. http://www.mywaterplan.com/irwm-plan-documents.html. Section 1.2.3 page 1-20 to 1-22, Section 10.4 pages 10-26 to 10-36, Table 10-5 pages 10-28 to 10-33, Section 8.2.2 page 8-3, Section 8.2.4 page 8-4. 		
Y	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: <ul style="list-style-type: none"> The Mojave Region SWRP (this SWRP) Section 4.4 pages 4-5 to 4-6 and Section 6.1 page 6-1. Mojave Water Agency. 2014. Final Mojave Integrated Regional Water Management Plan. June. http://www.mywaterplan.com/irwm-plan-documents.html. Section 1.2.3 pages 1-20 to 1-22, Section 10.4 pages 10-26 to 10-36, Table 10-5 pages 10-28 to 10-33, Section 8.2.2 page 8-3, Section 8.2.4 page 8-4. 		
Y	Plan describes mechanisms to engage communities in project design and implementation.	
References: <ul style="list-style-type: none"> The Mojave Region SWRP (this SWRP) Section 4 pages 4-1 to 4-6 and Section 6.1 page 6-1. Mojave Water Agency. 2014. Final Mojave Integrated Regional Water Management Plan. June. http://www.mywaterplan.com/irwm-plan-documents.html. Section 1.2.3 pages 1-20 to 1-22, Section 10.4 pages 10-26 to 10-36, Table 10-5 pages 10-28 to 10-33, Section 8.2.2 page 8-3, Section 8.2.4 page 8-4. 		
Y	Plan identifies specific audiences including local ratepayers, developers, locally regulated commercial and industrial stakeholders, nonprofit organizations, and the general public.	
References: <ul style="list-style-type: none"> The Mojave Region SWRP (this SWRP) Section 4 pages 4-1 to 4-6 and Section 6.1 page 6-1. Mojave Water Agency. 2014. Final Mojave Integrated Regional Water Management Plan. June. http://www.mywaterplan.com/irwm-plan-documents.html. Section 1.2.3 pages 1-20 to 1-22, Section 10.4 pages 10-26 to 10-36, Table 10-5 pages 10-28 to 10-33, Section 8.2.2 page 8-3, Section 8.2.4 page 8-4. 		
Y	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: <ul style="list-style-type: none"> Mojave Water Agency. 2014. Final Mojave Integrated Regional Water Management Plan. June. http://www.mywaterplan.com/irwm-plan-documents.html. Section 1.2.3 pages 1-19 to 1-21. 		
Y	Plan describes efforts to identify and address environmental injustice needs and issues within the watershed.	
References: <ul style="list-style-type: none"> Mojave Water Agency. 2014. Final Mojave Integrated Regional Water Management Plan. June. http://www.mywaterplan.com/irwm-plan-documents.html. Section 1.2.3 pages 1-19 to 1-21. 		

	Plan includes a schedule for initial public engagement and education.
References: <ul style="list-style-type: none">• Mojave Water Agency. 2014. Final Mojave Integrated Regional Water Management Plan. June. http://www.mywaterplan.com/irwm-plan-documents.html. Section 1.2.3 pages 1-19 to 1-21.	

SELF CERTIFICATION

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



Director of Basin Mgmt. and Resource Planning

2/18/20

Signature

Title

Date

Mojave Water Agency

Public Agency

Appendix B

Applicable Active NPDES Permittee List for Lahontan and Colorado River
RWQCBs

APPENDIX B.1

Facility Name	Place/Project Type	Regulatory Measure Type	Order No.	WDID	NPDES No.	Effective Date
General Atomics Aeronautical Systems	Industrial - Aircraft	Storm water industrial	97-03DW	6B36I013242	CAS000001	7/2/1997
Lockheed Martin Aeronautics Co	Industrial - Aircraft	Storm water industrial	97-03DW	6B36I003495	CAS000001	4/3/1992
GE Co	Industrial - Aircraft Engines and Engine Parts	Storm water industrial	97-03DW	6B36I019383	CAS000001	3/23/2005
DUCOMMUN AEROSTRUCTURES	Industrial - Aircraft Parts and Auxiliary Equipment, NEC	Storm water industrial	97-03DW	6B36I002981	CAS000001	1/8/1993
ComAv Technical Services	Industrial - Airports, Flying Fields, and Airport Terminal Services	Storm water industrial	97-03DW	6B36I022305	CAS000001	9/3/2009
Freeman Holdings of CA LLC	Industrial - Airports, Flying Fields, and Airport Terminal Services	Storm water industrial	97-03DW	6B36I025774	CAS000001	7/2/2015
Southern CA Logistics Airport	Industrial - Airports, Flying Fields, and Airport Terminal Services	Storm water industrial	97-03DW	6B36I021075	CAS000001	8/20/2007
Oro Grande	Industrial - Asphalt Paving Mixtures and Blocks	Storm water industrial	97-03DW	6B36I001337	CAS000001	3/27/1992
Blue Diamond Materials	Industrial - Asphalt Paving Mixtures and Blocks	Storm water industrial	97-03DW	6B36I022306	CAS000001	9/3/2009
Duffy Electric Boat Co	Industrial - Boat Building and Repairing	Storm water industrial	97-03DW	6B36I018175	CAS000001	6/11/2003
CEMEX Construction Materials Pacific LLC	Industrial - Cement, Hydraulic	Storm water industrial	97-03DW	6B36I019597	CAS000001	6/24/2005
CEMEX Construction Materials Pacific LLC	Industrial - Cement, Hydraulic	Storm water industrial	97-03DW	6B36I019598	CAS000001	6/24/2005
CalPortland Company Oro Grande Plant	Industrial - Cement, Hydraulic	Storm water industrial	97-03DW	6B36I026262	CAS000001	11/9/2015
Mobile Pipe Lining and Coating Inc	Industrial - Coating, Engraving, and Allied Services, NEC	Storm water industrial	97-03DW	6B36I023467	CAS000001	1/11/2012
Newmark Intl Inc	Industrial - Concrete Products, Except Block and Brick	Storm water industrial	97-03DW	6B36I018607	CAS000001	1/28/2004
Daily Transit Mix LLC	Industrial - Construction Sand and Gravel	Storm water industrial	97-03DW	6B36I019426	CAS000001	4/15/2005
Hi Grade Materials Co Oro Grande	Industrial - Construction Sand and Gravel	Storm water industrial	97-03DW	6B36I020597	CAS000001	12/26/2006
Hi Grade Materials Co Lucerne	Industrial - Construction Sand and Gravel	Storm water industrial	97-03DW	7 36I024944	CAS000001	7/7/2014
Robertson Lucerne II Rock Plant	Industrial - Construction Sand and Gravel	Storm water industrial	97-03DW	7 36I021674	CAS000001	7/15/2008
Skanska Barstow Plant	Industrial - Construction Sand and Gravel	Storm water industrial	97-03DW	6B36I024205	CAS000001	4/16/2013
Black Angel Mine	Industrial - Construction Sand and Gravel	Storm water industrial	97-03DW	6B36I021680	CAS000001	7/15/2008
Trio Engineered Products	Industrial - Conveyors and Conveying Equipment	Storm water industrial	97-03DW	6B36I026491	CAS000001	3/10/2016
FedEx DAGA	Industrial - Courier Services Except by Air	Storm water industrial	97-03DW	6B36I026386	CAS000001	1/11/2016
CEMEX Construction Materials Pacific LLC	Industrial - Crushed and Broken Limestone	Storm water industrial	97-03DW	6B36I019599	CAS000001	6/24/2005
Specialty Minerals Inc	Industrial - Crushed and Broken Limestone	Storm water industrial	97-03DW	7 36I013014	CAS000001	3/27/1997
Omya California	Industrial - Crushed and Broken Limestone	Storm water industrial	97-03DW	7 36I000880	CAS000001	3/23/1992
Hanson Aggregates Wrp	Industrial - Crushed and Broken Stone, NEC	Storm water industrial	97-03DW	6B36I001269	CAS000001	3/27/1992
The Nutro Company	Industrial - Dog and Cat Food	Storm water industrial	97-03DW	6B36I021738	CAS000001	8/13/2008
Luz Solar Partners Ltd Vii Ix	Industrial - Electric Services	Storm water industrial	97-03DW	6B36I007210	CAS000001	6/18/1992
CoolWater Generating Station	Industrial - Electric Services	Storm water industrial	97-03DW	6B36I013873	CAS000001	4/6/1998
AGC Flat Glass North America Inc	Industrial - Flat Glass	Storm water industrial	97-03DW	6B36I000570	CAS000001	3/16/1992
International Trading Co	Industrial - General Warehousing and Storage	Storm water industrial	97-03DW	6B36I024418	CAS000001	8/20/2013
National Environmental Fiberglass LLC	Industrial - Industrial and Commercial Fans and Blowers and Air Purification Equipment	Storm water industrial	97-03DW	6B36I019375	CAS000001	3/22/2005
Transdev Services Inc	Industrial - Local and Suburban Transit	Storm water industrial	97-03DW	6B36I024311	CAS000001	6/17/2013
Apex Bulk Commodities	Industrial - Local Trucking Without Storage	Storm water industrial	97-03DW	6B36I005041	CAS000001	3/16/1993
Dalton Trucking	Industrial - Local Trucking Without Storage	Storm water industrial	97-03DW	6B36I013738	CAS000001	2/2/1998
Unlimited Performance Products	Industrial - Motor Vehicle Parts and Accessories	Storm water industrial	97-03DW	6B36I019844	CAS000001	10/20/2005
Jalisco Auto Dismantling	Industrial - Motor Vehicle Parts, Used	Storm water industrial	97-03DW	6B36I025441	CAS000001	5/4/2015
Atlas Auto Salvage Inc	Industrial - Motor Vehicle Parts, Used	Storm water industrial	97-03DW	6B36I002280	CAS000001	3/31/1992
Ecology Auto Parts	Industrial - Motor Vehicle Parts, Used	Storm water industrial	97-03DW	6B36I024326	CAS000001	6/25/2013

APPENDIX B.1

Facility Name	Place/Project Type	Regulatory Measure Type	Order No.	WDID	NPDES No.	Effective Date
Primo Auto Salvage	Industrial - Motor Vehicle Parts, Used	Storm water industrial	97-03DW	6B36I025428	CAS000001	4/24/2015
A 1 Auto Wreckers	Industrial - Motor Vehicle Parts, Used	Storm water industrial	97-03DW	6B36I020160	CAS000001	3/29/2006
B and B Auto Parts	Industrial - Motor Vehicle Parts, Used	Storm water industrial	97-03DW	7 36I023240	CAS000001	7/18/2011
Auto Parts Lab	Industrial - Motor Vehicle Parts, Used	Storm water industrial	97-03DW	6B36I024194	CAS000001	4/5/2013
LKQ Lakenor Auto Truck Salvage Inc	Industrial - Motor Vehicle Parts, Used	Storm water industrial	97-03DW	6B36I025414	CAS000001	4/17/2015
Sierra Truck Auto No 3	Industrial - Motor Vehicle Parts, Used	Storm water industrial	97-03DW	6B36I017438	CAS000001	8/16/2002
Green Valley Foods	Industrial - Natural, Processed, and Imitation Cheese	Storm water industrial	97-03DW	6B36I021981	CAS000001	12/24/2008
Sherwin Williams Paint Co	Industrial - Paints, Varnishes, Lacquers, Enamels, and Allied Products	Storm water industrial	97-03DW	6B36I012247	CAS000001	4/10/1996
Holliday Rock Adelanto Plant 9	Industrial - Ready-Mixed Concrete	Storm water industrial	97-03DW	6B36I018824	CAS000001	6/4/2004
Robar Ent Inc	Industrial - Ready-Mixed Concrete	Storm water industrial	97-03DW	6B36I009600	CAS000001	12/21/1992
Robertsons Ready Mix	Industrial - Ready-Mixed Concrete	Storm water industrial	97-03DW	6B36I021236	CAS000001	10/26/2007
First Student Inc	Industrial - School Buses	Storm water industrial	97-03DW	6B36I021932	CAS000001	11/21/2008
Maintenance Operations Transpo	Industrial - School Buses	Storm water industrial	97-03DW	6B36I017919	CAS000001	3/11/2003
Snowline Joint Unified School District Transportation Dept	Industrial - School Buses	Storm water industrial	97-03DW	6B36I017933	CAS000001	3/13/2003
ARC Aircraft Recycling Corp	Industrial - Scrap and Waste Materials	Storm water industrial	97-03DW	6B36I019521	CAS000001	5/20/2005
Advance Disposal Inc Material	Industrial - Scrap and Waste Materials	Storm water industrial	97-03DW	6B36I009848	CAS000001	3/23/1993
All Recycling Center	Industrial - Scrap and Waste Materials	Storm water industrial	97-03DW	6B36I026451	CAS000001	2/17/2016
Industrial Fabricators	Industrial - Scrap and Waste Materials	Storm water industrial	97-03DW	6B36I025241	CAS000001	1/12/2015
SA Recycling	Industrial - Scrap and Waste Materials	Storm water industrial	97-03DW	6B36I021123	CAS000001	9/5/2007
Contech Engineered Solutions LLC	Industrial - Sheet Metal Work	Storm water industrial	97-03DW	6B36I002646	CAS000001	4/1/1992
Church and Dwight Co Inc	Industrial - Soaps and Other Detergents, Except Specialty Cleaners	Storm water industrial	97-03DW	6B36I023591	CAS000001	4/6/2012
Northwest Pipe Co	Industrial - Steel Pipe and Tubes	Storm water industrial	97-03DW	6B36I003503	CAS000001	4/3/1992
BCI Coca Cola Bottling Company of LA	Industrial - Trucking, Except Local	Storm water industrial	97-03DW	6B36I010910	CAS000001	2/18/1994
Victorville DC	Industrial - Trucking, Except Local	Storm water industrial	97-03DW	6B36I019014	CAS000001	9/7/2004
USA Services Inc	Industrial - Trucking, Except Local	Storm water industrial	97-03DW	6B36I004397	CAS000001	11/17/1992
Valley Bulk Inc	Industrial - Trucking, Except Local	Storm water industrial	97-03DW	6B36I024510	CAS000001	10/8/2013
El Dorado-Ivanpah Transmission Project	Dredge/Fill Site	Enrollee - 401 Certification	null	6B36I105006	null	1/10/2012
City of Barstow	Facility	Phase II Small MS4	2013-0001-DWQ	6B36M2000222	CAS000004	12/23/2013
City of Hesperia	Facility	Phase II Small MS4	2013-0001-DWQ	6B36M2000180	CAS000004	9/3/2013
City of Victorville	Facility	Phase II Small MS4	2013-0001-DWQ	6B36M2000207	CAS000004	10/15/2013
County of San Bernardino	Facility	Phase II Small MS4	2013-0001-DWQ	6B36M2000166	CAS000004	8/21/2013
Town of Apple Valley	Facility	Phase II Small MS4	2013-0001-DWQ	6B36M2000165	CAS000004	8/21/2013
Apple Valley Airport	Industrial - Airports, Flying Fields, and Airport Terminal Services	Storm water industrial	97-03DW	6B36I005142	CAS000001	4/7/1992
Twentynine Palms Airport	Industrial - Airports, Flying Fields, and Airport Terminal Services	Storm water industrial	97-03DW	7 36I005139	CAS000001	11/25/1992
Barstow Daggett Airport	Industrial - Airports, Flying Fields, and Airport Terminal Services	Storm water industrial	97-03DW	6B36I005140	CAS000001	11/25/1992
UPS Barstow CABAR	Industrial - Courier Services Except by Air	Storm water industrial	97-03DW	6B36I002023	CAS000001	3/30/1992
UPS Victorville Center CAVTV	Industrial - Courier Services Except by Air	Storm water industrial	97-03DW	6B36I002025	CAS000001	3/30/1992
Fort Cady Road Quarry	Industrial - Crushed and Broken Limestone	Storm water industrial	97-03DW	6B36I023599	CAS000001	4/13/2012
Victorville Ind Min Inc Oro Gr	Industrial - Industrial Sand	Storm water industrial	97-03DW	6B36I010944	CAS000001	2/28/1994
Baxter Mine	Industrial - Iron Ores	Storm water industrial	97-03DW	6B36I006253	CAS000001	4/22/1992
Victor Valley Transit	Industrial - Local and Suburban Transit	Storm water industrial	97-03DW	6B36I025178	CAS000001	12/2/2014

APPENDIX B.1

Facility Name	Place/Project Type	Regulatory Measure Type	Order No.	WDID	NPDES No.	Effective Date
AMR Victorville	Industrial - Local Passenger Transportation, NEC	Storm water industrial	97-03DW	6B36I019488	CAS000001	5/11/2005
Morongo Basin Transit Auth	Industrial - Local Passenger Transportation, NEC	Storm water industrial	97-03DW	7 36I017704	CAS000001	12/24/2002
Burrtec Victorville Yard	Industrial - Local Trucking Without Storage	Storm water industrial	97-03DW	6B36I000270	CAS000001	1/11/1993
Burrtec Barstow Yard	Industrial - Local Trucking Without Storage	Storm water industrial	97-03DW	6B36I024374	CAS000001	7/24/2013
American Recycling International dba LKQ Pick Your Part Victorville	Industrial - Motor Vehicle Parts, Used	Storm water industrial	97-03DW	6B36I025934	CAS000001	8/14/2015
LKQ Desert High Truck Auto Recyclers Pick A Part Hesperia	Industrial - Motor Vehicle Parts, Used	Storm water industrial	97-03DW	6B36I023434	CAS000001	12/9/2011
US Marine Corps Logistics Base	Industrial - Petroleum Bulk Stations and Terminals	Storm water industrial	97-03DW	6B36I001745	CAS000001	3/30/1992
Molded Fiber Glass Co West	Industrial - Plastics Products, NEC	Storm water industrial	97-03DW	6B36I009859	CAS000001	3/26/1993
Plastipak Packaging Inc	Industrial - Plastics Products, NEC	Storm water industrial	97-03DW	6B36I022791	CAS000001	8/18/2010
BNSF Railway Barstow	Industrial - Railroads, Line-haul Operating	Storm water industrial	97-03DW	6B36I013001	CAS000001	3/19/1997
BNSF Railway Victorville	Industrial - Railroads, Line-haul Operating	Storm water industrial	97-03DW	6B36I014548	CAS000001	9/3/1998
Robertsons Ready Mix Adelanto	Industrial - Ready-Mixed Concrete	Storm water industrial	97-03DW	6B36I013172	CAS000001	6/26/1997
Robertsons Lucerne Plant	Industrial - Ready-Mixed Concrete	Storm water industrial	97-03DW	7 36I020824	CAS000001	4/13/2007
Barstow Batch Plant	Industrial - Ready-Mixed Concrete	Storm water industrial	97-03DW	6B36I002859	CAS000001	4/2/1992
Victorville Batch Plant	Industrial - Ready-Mixed Concrete	Storm water industrial	97-03DW	6B36I002856	CAS000001	4/2/1992
Robertsons Ready Mix Lake Arro	Industrial - Ready-Mixed Concrete	Storm water industrial	97-03DW	6B36I011161	CAS000001	9/16/1994
Fort Irwin Batch Plant	Industrial - Ready-Mixed Concrete	Storm water industrial	97-03DW	6B36I018326	CAS000001	9/5/2003
Site DP003 Former George AFB	Industrial - Refuse Systems	Storm water industrial	97-03DW	6B36I025566	CAS000001	6/11/2015
Site LF044 Former George AFB	Industrial - Refuse Systems	Storm water industrial	97-03DW	6B36I025577	CAS000001	6/12/2015
Site LF014 Former George AFB	Industrial - Refuse Systems	Storm water industrial	97-03DW	6B36I025576	CAS000001	6/12/2015
Site LF012 Former George AFB	Industrial - Refuse Systems	Storm water industrial	97-03DW	6B36I025575	CAS000001	6/12/2015
Site LF007 Former George AFB	Industrial - Refuse Systems	Storm water industrial	97-03DW	6B36I025573	CAS000001	6/12/2015
Site DP004 Former George AFB	Industrial - Refuse Systems	Storm water industrial	97-03DW	6B36I025572	CAS000001	6/12/2015
Burrtec Yucca Valley Yard	Industrial - Refuse Systems	Storm water industrial	97-03DW	7 36I020267	CAS000001	6/5/2006
Victor Valley Materials Recovery Facility	Industrial - Refuse Systems	Storm water industrial	97-03DW	6B36I024306	CAS000001	6/14/2013
Barstow Sanitary Landfill	Industrial - Refuse Systems	Storm water industrial	97-03DW	6B36I005255	CAS000001	4/9/1992
Victorville Sanitary Landfill	Industrial - Refuse Systems	Storm water industrial	97-03DW	6B36I005235	CAS000001	4/9/1992
Landers Sanitary Landfill	Industrial - Refuse Systems	Storm water industrial	97-03DW	7 36I005246	CAS000001	4/9/1992
A 1 Hesperia Recycling Company Inc	Industrial - Scrap and Waste Materials	Storm water industrial	97-03DW	6B36I024683	CAS000001	2/14/2014
Victor Valley Regional Compost	Industrial - Scrap and Waste Materials	Storm water industrial	97-03DW	6B36I022782	CAS000001	8/11/2010
Apple Valley Recycling	Industrial - Scrap and Waste Materials	Storm water industrial	97-03DW	6B36I024643	CAS000001	1/21/2014
US Marine Corps Logistics Base	Industrial - Scrap and Waste Materials	Storm water industrial	97-03DW	6B36I001746	CAS000001	3/30/1992
Willow Creek Wastewater Treatment Plant	Industrial - Sewerage Systems	Storm water industrial	97-03DW	6B36I026476	CAS000001	3/3/2016
Grass Valley Wasterwater Treatment Plant	Industrial - Sewerage Systems	Storm water industrial	97-03DW	6B36I026475	CAS000001	3/3/2016
Victor Valley Wastewater Reclamation Authority	Industrial - Sewerage Systems	Storm water industrial	97-03DW	6B36I005756	CAS000001	4/7/1992
Premier Wood Prod Inc	Industrial - Wood Products, NEC	Storm water industrial	97-03DW	6B36I012924	CAS000001	2/20/1997

Notes:

1. Downloaded from DWR's Interactive Regulated Facilities Report on April 8, 2016 (<https://ciwqs.waterboards.ca.gov/ciwqs/readOnly/CiwqsReportServlet?inCommand=reset&reportName=RegulatedFacility>).

APPENDIX B.2

Facility Name	Place/Project Type	Regulatory Measure Type	Order No.	WDID	NPDES No.	Effective Date
Mitsubishi Cement 01-006	Concrete Manufacturing	WDR	01-006	7A362022011	--	3/14/2001
Hi-Grade Materials Co.	Concrete Manufacturing	WDR	R7-2012-0051	7A361344001	--	11/15/2012
Los Ranchos MHP	Mobile Home Park	WDR	85-038	6B361105001	--	4/12/1985
Mountain View Villas	Mobile Home Park	WDR	86-011	6B368054001	--	1/9/1986
Jensen's Market	Other	WDR	84-008	6B368090010	--	1/12/1984
Phelan Towne Square	Other	WDR	92-105	6B369208001	--	11/12/1992
C.V. Kane Safety Roadside Rest	Other	WDR	94-100	6B369405003	--	10/13/1994
Grand View Plaza	Other	Enrollee	97-010-DWQ	6B360609007	--	12/7/2011
Desert Oasis Safety Rdside RES	Other	WDR	97-096	6B360801005	--	10/8/1997
Lazy "H" MHC	Other	Enrollee	97-500	7A361033001	--	10/22/1998
Desert Manor 97-50043	Other	Enrollee	97-500	7A361405011	--	1/22/1998
Sky Harbor Care Cntr 97-50044	Other	Enrollee	97-500	7A361405012	--	1/22/1998
Santa Fe Asst. Living	Other	Enrollee	97-500	7A361405013	--	1/22/1998
El Paseo Apartments 97-500100	Other	Enrollee	97-500	7A361029001	--	4/20/1998
Best Western Gardens 97-500128	Other	Enrollee	97-500	7A361004001	--	6/18/1999
Joshua Sprgs Calvary Chapel	Other	Enrollee	97-500	7A361008001	--	7/19/2001
Motel 6 97-500122	Other	Enrollee	97-500	7A361034011	--	11/3/1998
Country Inn 97-500158	Other	Enrollee	97-500	7A361012001	--	5/25/2004
Sunwest Villas 97-50096	Other	Enrollee	97-500	7A361002001	--	4/1/1998
Travelodge Inn & Suites	Other	Enrollee	97-500	7A361013001	--	7/28/2004
Holiday Inn Express	Other	Enrollee	97-500	7A361009001	--	4/17/2002
Adobe Villas	Other	Enrollee	97-500	7A361005001	--	6/12/2000
Yucca Trails Apts	Other	Enrollee	97-500	7A361010001	--	9/10/2002
Heaps Peak Leachate Treatment & Disposal System	Other	WDR	R6V-2012-0011	6B361105007	--	3/14/2012
Desert View Estates Inc	Residence, NEC	WDR	R7-2006-0035	7A360105001	--	5/17/2006
Turtle Rock in 29 LLC	Residence, NEC	WDR	R7-2006-0036	7A361031011	--	5/17/2006
Desert Knoll Tract 17168	Residence, NEC	WDR	R7-2006-0057	7A361022001	--	9/20/2006
Melina Square	Restaurant	WDR	88-021	6B368070025	--	3/10/1988
Roadhouse Restaurant	Restaurant	Enrollee	97-010-DWQ	6B361130001	--	6/27/2004
Jack in The Box Restaurant No 3588	Restaurant	Enrollee	97-010-DWQ	6B360108002	--	2/22/2002
Applebee's Restaurant	Restaurant	WDR	R7-2006-0030	7A361030011	--	6/21/2006
Bear Valley Firestone	Service/Commercial Site, NEC	WDR	88-001	6B368070019	--	1/14/1988
Burger Basket	Service/Commercial Site, NEC	WDR	93-016	6B369212001	--	3/11/1993

APPENDIX B.2

Facility Name	Place/Project Type	Regulatory Measure Type	Order No.	WDID	NPDES No.	Effective Date
Checkered Flag Auto Spa	Service/Commercial Site, NEC	Enrollee	93-600	7A366666019	--	9/12/1994
Specialty Minerals 93-60030	Service/Commercial Site, NEC	Enrollee	93-600	7A366666030	--	8/15/1995
Bros. Car Wash 93-60025	Service/Commercial Site, NEC	Enrollee	93-600	7A366666025	--	9/16/1994
Steve's Carwash 93-60017	Service/Commercial Site, NEC	Enrollee	93-600	7A366666017	--	9/12/1994
Paradise Maintenance Station	Service/Commercial Site, NEC	Enrollee - WDR	93-600	7A366666062	--	2/17/2016
Wash'N Shop Coin Lndry	Service/Commercial Site, NEC	WDR	R7-2008-0034	7A361289001	--	5/21/2008
Norge Village Lndromat	Service/Commercial Site, NEC	WDR	R7-2013-0017	7A361025011	--	1/17/2013
Pilot Rock Cons Camp Pack WTF	Wastewater Treatment Facility	WDR	00-072	6B360811001	--	9/14/2000
Desert Vista Village WWTF	Wastewater Treatment Facility	WDR	R7-2007-0008	7A361016001	--	3/21/2007
Church Street WWTP	Wastewater Treatment Facility	WDR	R7-2007-0009	7A361032001	--	3/21/2007
Holiday Inn Express	Service/Commercial Site, NEC	WDR	R7-2009-0010	7A361023001	--	1/22/2009
Yucca Vly Laundromat 93-044	Service/Commercial Site, NEC	WDR	R7-2008-0035	7A361026011	--	5/21/2008
Fairfield Inn & Suites Twentynine Palms	Service/Commercial Site, NEC	WDR	R7-2009-0009	7A361038001	--	1/22/2009
29 Palms RV & Golf Resort	Campground	Enrollee	97-500	7A361329001	--	11/29/1989
Yucca Falls RV Resort	Campground	Enrollee	97-500	7A361007001	--	7/18/2001
Victor Valley Regional Compost	Composting Facility	WDR	00-065	6B369912001	--	7/12/2000
Yucca Valley Senior Housing	Domestic Site NEC	WDR	R7-2013-0058	7A361044001	--	6/20/2013
Warren Vista Center	Dredge/Fill Site	Enrollee	97-500	7A361043001	--	4/18/2011
Copper Mountain College	Educational Facilities	Enrollee	97-500	7A361040011	--	11/2/1998
Joshua Tree Elementary School	Educational Facilities	Enrollee	97-500	7A360118001	--	8/22/2012
BB Reg WWA-Lucerne Vly 01-156	Other	WDR	01-156	7A360100011	--	11/14/2001
Joshua Basin Water District	Other	Enrollee	2003-0003-DWQ	7A361018001	--	5/8/2006
29 Palms Replacement District Well 1	Other	Enrollee	2003-0003-DWQ	7A360120001	--	6/1/2011
Crestline Area Exemptions	Other	WDR	81-003	6B361590002	--	1/8/1981
Lake Arrowhead Exemptions	Other	WDR	84-093	6B361590001	--	7/13/1984
Lucerne Valley HS 97-50025	Other	Enrollee	97-12117	7A361330001	--	3/14/1990
Yucca Valley Trailer Court	Other	Enrollee	97-500	7A361035011	--	12/15/1998
Hi-Desert Cont Care 97-50093	Other	Enrollee	97-500	7A361041022	--	3/18/1998
Hi-Dsrt Memorial Hospital Dist	Other	Enrollee	97-500	7A361011011	--	9/25/2003
Lucerne Valley Elem. 97-50041	Other	Enrollee	97-500	7A361330003	--	9/19/1997
The Hacienda MHP 97-500139	Other	Enrollee	97-500	7A361006001	--	7/14/2000

APPENDIX B.2

Facility Name	Place/Project Type	Regulatory Measure Type	Order No.	WDID	NPDES No.	Effective Date
Mitsubishi Cement 97-50058	Other	Enrollee	97-500	7A362022021	--	3/12/1998
Yucca Valley High 97-500119	Other	Enrollee	97-500	7A361042013	--	10/22/1998
Yucca Valley Elem 97-500115	Other	Enrollee	97-500	7A361042009	--	10/21/1998
Yucca Mesa Charter 97-500114	Other	Enrollee	97-500	7A361042008	--	10/21/1998
Twentynine Plms Jr. 97-500117	Other	Enrollee	97-500	7A361042011	--	10/22/1998
Twentynine Plms High 97-500118	Other	Enrollee	97-500	7A361042012	--	10/22/1998
Twentynine Plms Elem 97-500113	Other	Enrollee	97-500	7A361042007	--	10/21/1998
Palm Vista Elem 97-500112	Other	Enrollee	97-500	7A361042006	--	10/21/1998
Onaga Elementary 97-500111	Other	Enrollee	97-500	7A361042005	--	10/21/1998
Oasis Elementary 97-500110	Other	Enrollee	97-500	7A361042004	--	10/9/1998
Morongo Valley Elem 97-500109	Other	Enrollee	97-500	7A361042003	--	10/9/1998
La Contenta Jr. High 97-500116	Other	Enrollee	97-500	7A361042010	--	10/22/1998
Joshua Tree Elem 97-500108	Other	Enrollee	97-500	7A361042002	--	10/9/1998
Friendly Hills Elem 97-500107	Other	Enrollee	97-500	7A361042001	--	10/9/1998
Vista DEL Sol I 97-500104	Other	Enrollee	97-500	7A361030001	--	8/18/1998
Vista DEL Sol II 97-500105	Other	Enrollee	97-500	7A361031001	--	8/18/1998
Sunnyslope Apts 97-50097	Other	Enrollee	97-500	7A361003001	--	4/1/1998
Phelan Shopping Center	Service/Commercial Site, NEC	WDR	89-001	6B368040004	--	1/9/1989
Lucerne Vly Buswash 93-60032	Service/Commercial Site, NEC	Enrollee	93-600	7A366666032	--	11/22/1995
29 Palms Bus Yard 93-60001	Service/Commercial Site, NEC	Enrollee	93-600	7A366666001	--	12/2/1993
La Contenta Bus Yard 93-60002	Service/Commercial Site, NEC	Enrollee	93-600	7A366666002	--	12/8/1993
Yucca Valley Service Center	Service/Commercial Site, NEC	Enrollee	93-600	7A366666061	--	6/18/2013
Best Western Joshua Tree Hotel & Suites	Service/Commercial Site, NEC	WDR	R7-2007-0025	7A360109001	--	6/26/2007
Yucca Valley Wal-Mart Store #1915-04	Service/Commercial Site, NEC	WDR	R7-2012-0003	7A360140001	--	1/19/2012
Hi-Desert Medical Center WWTF	Service/Commercial Site, NEC	WDR	R7-2012-0006	7A360117001	--	1/19/2012
Joshua Tree Laundry	Service/Commercial Site, NEC	WDR	R7-2013-0016	7A361046011	--	5/16/2013
Nebo Domestic WTF	Wastewater Treatment Facility	WDR	01-020	6B360702004	--	4/11/2001
Helendale Silverlakes STP	Wastewater Treatment Facility	WDR	01-039	6B361111001	--	6/13/2001
Yermo Domestic WTF	Wastewater Treatment Facility	WDR	01-042	6B360702003	--	6/13/2001
Barstow WTF Mojave River Bed	Wastewater Treatment Facility	WDR	94-026	6B360101001	--	2/10/1994
Crestline SD Three WTF's	Wastewater Treatment Facility	WDR	94-057	6B360106001	--	5/19/1994
Barstow/Daggett Airport WTF	Wastewater Treatment Facility	WDR	99-037	6B360115002	--	9/9/1999

APPENDIX B.2

Facility Name	Place/Project Type	Regulatory Measure Type	Order No.	WDID	NPDES No.	Effective Date
Lake Arrowhead CSD WTFS	Wastewater Treatment Facility	WDR	R6V-2009-0037	6B360107001	--	6/10/2009
VVWRA Sub-Regional Plant-Apple Valley	Wastewater Treatment Facility	WDR	R6V-2013-0004	6B360907006	--	1/17/2013
VVWRA- Sub-Regional Plant-Hesperia	Wastewater Treatment Facility	WDR	R6V-2013-0005	6B360907005	--	1/17/2013
Victor Valley Wastewater Reclamation Authority WTP	Wastewater Treatment Facility	NPDES Permit	R6V-2013-0038	6B360109001	CA0102822	9/5/2013
Adelanto WWTP	Wastewater Treatment Facility	WDR	R6V-2013-0058	6B369805001	--	7/17/2013
SCLA Central WWTP-Victorville Water Dist	Wastewater Treatment Facility	WDR	R6V-2014-0002	6B360911001	--	1/9/2014
USMC - Mainside WWTF	Wastewater Treatment Facility	WDR	R7-2012-0002	7A360702011	--	6/21/2012

Appendix C

Mojave Region Storm Water Resource Plan Projects

Mojave Integrated Regional Water Management Plan

Storm Water Funding Project Identification – Addendum

To the extent possible this form should be electronically filled out and e-mailed to comments@mywaterplan.com. Items denoted with an asterisk are required.

Please provide the following information regarding the project sponsor and proposed project. Use this Addendum if the project is already on the Existing IRWM Plan List and has completed a Long-Form. If you are submitting a new project for the storm water funding, complete a separate Storm Water Long-Form.

Implementing Agency/ Organization / Individual: *

San Bernardino County Flood Control District

Project Name: *

Amethyst Basin

Either the latitude/longitude or a location description is required. To determine the latitude/longitude, use the closest address or intersection. If the project is linear, use the furthest upstream latitude/longitude.

Project Latitude: 34.460

Project Longitude: -117.3368

Location Description:

The Amethyst Basin project is located in the City of Victorville along the Oro Grande Wash. The Basin is located approximately 0.5 mile west of Interstate 15, approximately 1.7 miles north of the California Aqueduct, and approximately 0.7 mile east of U.S. Highway 395. The Oro Grande Wash is an intermittent stream which receives water from the Cajon Pass area of the San Bernardino Mountains as well as from desert floor runoff and flows in a northeast direction, terminating at the Mojave River.

Cost Estimate Update (capital and O&M):

\$ 12.8 Million

Source of Funding:

Local Fund

% Funding Match:

Schedule/Status Update:

The project is currently in the final design phase, ready to advertise early 2017. Construction is expected take 12 months to complete.

Contact Information: *

Michael Fam
 Project Manager
[Tel:909-387-8124](tel:909-387-8124)
 Fax: 909-387-7801
 Email: mfam@dpw.sbcounty.gov

Please provide a brief project description. If your project addresses a water quality issue, please indicate what the applicable permit pollutant for the project if any, what pollutants are removed by the project, or at minimum what pollutants have limits that apply to the project.

The Bandicoot Basin Project consists of the construction of a detention basin located within the City of Victorville in San Bernardino County. The proposed basin will be earthen bottom and will include inlet, outlet and transition structures, channels and/or closed conduits, transition structures, wingwalls, headwalls, cut-off walls, basin embankments, emergency spillway, access roadways along tops of the embankments and around the basins and access ramps to the basin floor.

Amethyst Basin covers approximately 30 acres and flows in the southwest to northeast direction. Two weakened dikes each of 5-foot high are proposed within this basin to enhance groundwater recharge. These dikes subdivide the basin into three sub-basins. Basin embankment slopes will be constructed at 3 to 1 ratio (3H:1V) for the interior slopes and at 2 to 1 ratio (2H:1V) for the exterior slopes, with a minimum top width of 20 feet. A 20-foot wide access road is located along the top of embankment and around the basin. Three access ramps to the basin floors will be provided at each sub-basin for maintenance purposes. The access ramps shall also have a minimum width of 20 feet.

Does your Project service a Disadvantaged Community or an Economically Distressed Area?

Yes

General Project Information

Watershed Name:

Mojave River Watershed

Land Uses in Drainage Basin (i.e., single-family residential, multi-family residential, education, open space, commercial):

Open Space

Drainage Basin Area:

6,591 ACRES

Applicable 303(d) listed water bodies:

Applicable Total Maximum Daily Loads (TMDLs):

Please indicate to what extent your project contributes to the following Storm Water Management Benefits. At a minimum, projects should address two Main Benefits listed below in accordance with the Storm Water Resources Plan Guidelines.

	Main Benefit		Additional Benefits
Water Quality			
<input checked="" type="checkbox"/>	Increased filtration and/or treatment of runoff	<input type="checkbox"/>	Nonpoint source pollution control

<input type="checkbox"/>		<input type="checkbox"/>	Reestablished natural water drainage and treatment
Water Supply			
<input type="checkbox"/>	Water Supply Reliability	<input checked="" type="checkbox"/>	Water Conservation
<input type="checkbox"/>	Conjunctive Use		
Flood Management			
<input checked="" type="checkbox"/>	Decreased flood risk by reducing runoff rate and/or volume	<input type="checkbox"/>	Reduced sanitary sewer overflows
Environmental			
<input type="checkbox"/>	Environmental and habitat protection and improvement including: wetland enhancement/creation; riparian enhancement/creation; increased urban green space, and/or instream flow improvement	<input type="checkbox"/>	Reduced energy use, greenhouse gas emissions, or provides a carbon sink
		<input type="checkbox"/>	Reestablishment of the natural hydrograph
		<input checked="" type="checkbox"/>	Water temperature improvements
Community			
<input type="checkbox"/>	Employment opportunities provided	<input type="checkbox"/>	Community involvement
<input type="checkbox"/>	Public Education	<input type="checkbox"/>	Enhance and/or create recreational and public use areas

Describe/Quantify the storm water benefits of the project. First check whether the storm water benefit is a 'primary' or 'secondary' benefit. All primary benefits MUST be quantified. See Table A below for guidance.

Storm Water Management Benefit		Quantitative Metric Unit (see Table A)	Benefit Assessment			Description/Quantity
Water Quality		(indicate if a TMDL pollutant or if impairing a 303(d) listed waterbody)	<input checked="" type="checkbox"/> No pollutant removal	<input type="checkbox"/> Partial removal in discharge	<input type="checkbox"/> Removal below an appropriate permit or TMDL threshold	
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary					
Water Supply			<input type="checkbox"/> No infiltration or planned use	<input checked="" type="checkbox"/> Potential for infiltration and/or capture and reuse	<input type="checkbox"/> Large-scale infiltration and/or capture and reuse.	
<input type="checkbox"/> Primary	<input checked="" type="checkbox"/> Secondary					
Flood Management			<input type="checkbox"/> No flood management benefit	<input type="checkbox"/> Alleviates minor flooding issues	<input checked="" type="checkbox"/> Alleviates major flooding issues	
<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary					
Environmental			<input checked="" type="checkbox"/> No environmental benefit	<input type="checkbox"/> Qualitative environmental benefit	<input type="checkbox"/> Quantitative environmental benefit	
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary					
Community			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Storm Water Management Benefit		Quantitative Metric Unit (see Table A)	Benefit Assessment			Description/Quantity
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary		No community benefit	Medium community benefit	High community benefit	

Please describe any modeling that has been completed for the project:

Have the benefits of your project been modeled or quantified (yes/no): _____

List the BMP(s) included in this project and indicate if modeling was completed for each BMP:

1. _____
2. _____
3. _____

Please share the following modeled information, as applicable (additional rows may be added as needed):

Approx. BMP Footprint Area (sq feet)	
Drainage Area (sq feet)	6,591 Acres
Imperviousness of Drainage Area (%)	
Volume of 85 th percentile-24-hour storm event (cubic ft)	
Volume of dry weather runoff (cubic ft)	
Ponding Depth (ft)	
Mulch Depth (ft)	
Planting Mix Depth (ft)	
Gravel Layer Depth (ft) and media mix (i.e., mulch, planting mix, gravel, etc.)	
Storage Volume (accounting for porosity) (cubic ft)	
Expected percentage of the 85 th percentile-24-hour storm event captured (%)	

Please indicate to what extent your project addresses the following:

Is the project included in a Storm Water Resources Plan that is consistent with the Water Code requirements and Storm Water Resource Plan Guidelines?

☒ Yes ☐ No ☐ Not Sure

Is the project consistent with the applicable water quality control plan (Basin Plan)?

☒ Yes ☐ No ☐ Not Sure

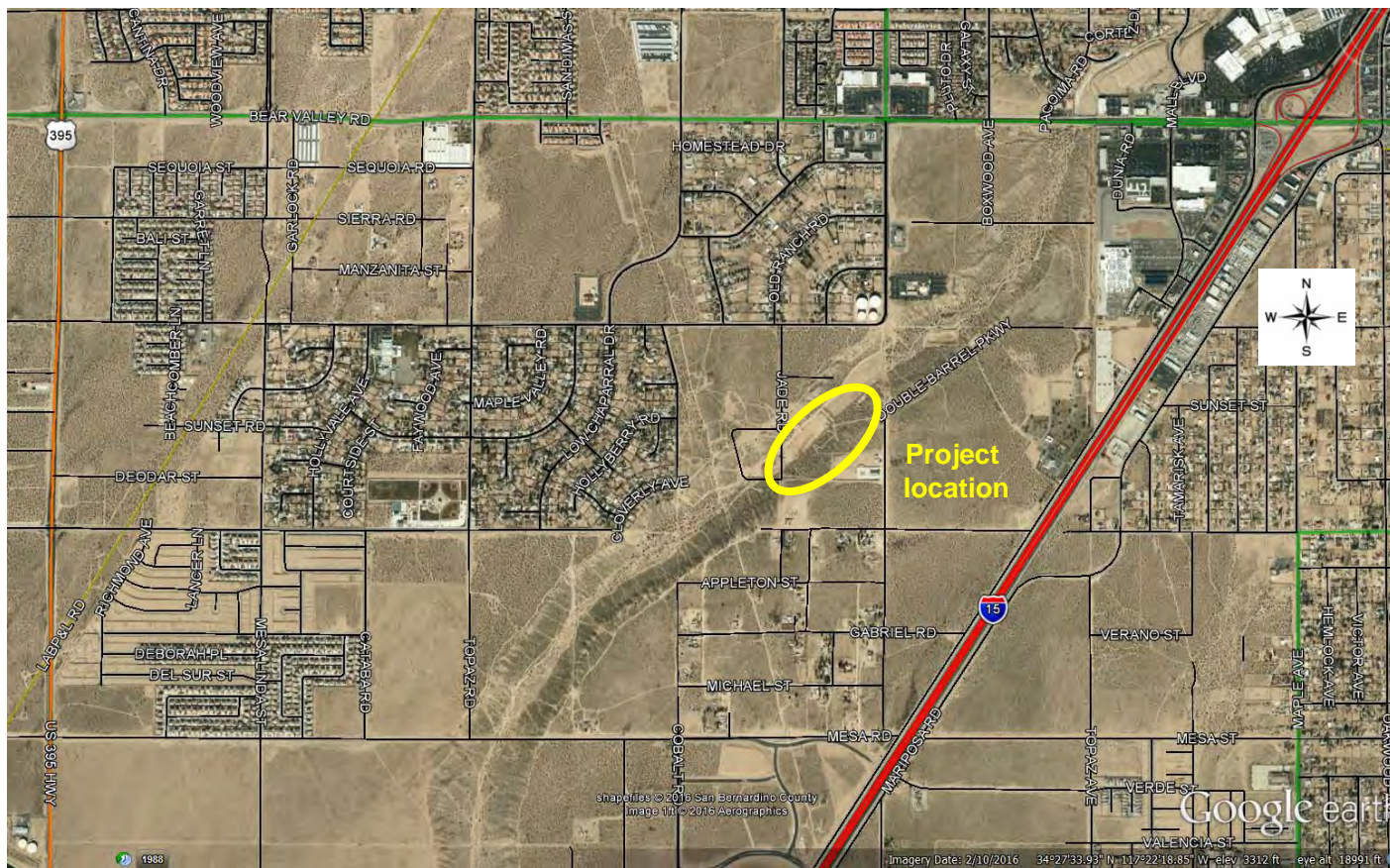
Does the project create permanent, local, or regional funding? (i.e., a dedicated source of funding)
☒ **Yes** ☐ **No** ☐ **Not Sure**

Is the project located on lands in public ownership
☒ **Yes** ☐ **No** ☐ **Not Sure**
If yes, please identify the public ownership: _____

Table A. Benefit Metrics

Benefit	Example	Metric Unit(s)
Water Quality	Increased filtration and/or treatment of runoff	Pollutant Load Reduction: pounds (lbs)/day; kilograms (kg)/day; milligram/Liter; microgram /Liter; most probable number of bacteria or indicator organisms (mpn)/mL Volume Treated: million gallons per day (mgd); acre-feet per year (afy)
	Nonpoint source pollution control	
	Reestablished natural water drainage and treatment	
Water Supply	Water supply reliability	Volume Captured (in terms of augmentation/replacement of water supply, or reduced dependence on imported water): million gallons per day (mgd); acre-feet per year (afy); Cost: dollars per volume per year (of augmented water supply)
	Water conservation	
	Conjunctive use	
Flood Management	Decreased flood risk by reducing runoff rate and/or volume	Rate, Volume, and/or Size: cubic feet per second (cfs); acre-feet (af); cubic feet (cf); acres (ac); or linear feet (LF)
	Reduced sanitary sewer overflows	
Environmental	Environmental and habitat protection and improvement, including: wetland enhancement/creation; riparian enhancement; and/or instream flow improvement	Size and/or Rate: acres (ac); cubic feet per second (cfs); carbon sequestration (megagrams of carbon per area) Other: area units of landscape and buffer measure of improved hydrology number of biotic structure number of physical structures; reduced temperature (degrees)
	Increased urban green space	
	Reduced energy use, greenhouse gas emissions, or provides a carbon sink	
	Reestablishment of the natural hydrograph	
	Water temperature improvements	
Community	Enhanced and/or created recreational and public use areas	Size of population served; number of people; number of jobs; acres
	Community involvement	
	Employment opportunities provided	

Note: Table A is based on Table 3 in the Storm Water Resources Plan Guidelines, prepared by the State Water Resources Control Board.



County of San Bernardino

PROJECT LOCATION

Latitude: 34.460

Longitude: -117.336



COUNTY OF SAN BERNARDINO
DEPARTMENT OF PUBLIC WORKS

AMETHYST BASIN

Mojave Integrated Regional Water Management Plan

Storm Water Funding Project Identification – Addendum

To the extent possible this form should be electronically filled out and e-mailed to comments@mywaterplan.com. Items denoted with an asterisk are required.

Please provide the following information regarding the project sponsor and proposed project. Use this Addendum if the project is already on the Existing IRWM Plan List and has completed a Long-Form. If you are submitting a new project for the storm water funding, complete a separate Storm Water Long-Form.

Implementing Agency/ Organization / Individual: *

San Bernardino County Flood Control District

Project Name: *

Bandicoot Basin

Either the latitude/longitude or a location description is required. To determine the latitude/longitude, use the closest address or intersection. If the project is linear, use the furthest upstream latitude/longitude.

Project Latitude: 34.407205

Project Longitude: -117.356825

Location Description:	<p>The Project Located south of the California Aqueduct at DWR Station 1890+00 (PM 397.3), between Bandicoot Trail and the Edison Easement, in the unincorporated area of San Bernardino County.</p> <p>San Bernardino County Flood Control District's objective for this project is multi-faceted. The objective is to attenuate storm flows to reduce the potential for downstream flooding in both large and small storm events as part of the Master Plan System, by capturing, redirecting and percolating those flows in a detention basin. The capture and percolation of storm events will provide much needed groundwater recharge as well as water quality benefit as it will help to reduce contaminants to Mojave River. Implementation of the proposed project will provide flood protection for the existing structures, residences, and businesses within the project area. The Bandicoot Basin will be designed to accommodate a storage capacity of 526 acre-feet at spillway depth. In addition, Bandicoot Basin has been identified as a "high priority" project in the Mojave Water Agencies (MWA) 2014 Integrated Regional Water Management Plan as a vital component to the MWA Cedar Street/Bandicoot Detention Basin project and will be utilized for groundwater recharge. The additional recharge provided by the project will help to meet the water demand in the Alto Subarea of the Mojave Basin Area, while helping to achieve the District's objective to improve flood protection.</p>
------------------------------	---

Cost Estimate Update (capital and O&M):

\$24,850,646

Source of Funding:

Local Fund

% Funding Match:

Schedule/Status Update:

The project is currently in the design phase with construction planned to start in 2021-22. Construction is expected take 12 months to complete.

Contact Information: *

Michael Fam
Project Manager
[Tel:909-387-8124](tel:909-387-8124)
Fax: 909-387-7801
Email: mfam@dpw.sbcounty.gov

Please provide a brief project description. If your project addresses a water quality issue, please indicate what the applicable permit pollutant for the project if any, what pollutants are removed by the project, or at minimum what pollutants have limits that apply to the project.

The Bandicoot Basin Project consists of the construction of a detention basin located within the City of Hesperia Sphere of Influence in unincorporated San Bernardino County. The proposed Bandicoot Basin is addressed in the Hesperia Master Plan of Drainage and is considered a Regional Facility. The Bandicoot Basin project being proposed for funding is a component of an overall effort to reduce the risk of flooding to properties downstream, enhance public safety and provide ground water recharge.

Does your Project service a Disadvantaged Community or an Economically Distressed Area?

No

General Project Information

Watershed Name:

Mojave River Watershed

Land Uses in Drainage Basin (i.e., single-family residential, multi-family residential, education, open space, commercial):

Open Space

Drainage Basin Area:

3494 ACRES

Applicable 303(d) listed water bodies:

Applicable Total Maximum Daily Loads (TMDLs):

Please indicate to what extent your project contributes to the following Storm Water Management Benefits. At a minimum, projects should address two Main Benefits listed below in accordance with the Storm Water Resources Plan Guidelines.

Main Benefit		Additional Benefits	
Water Quality			
<input checked="" type="checkbox"/>	Increased filtration and/or treatment of runoff	<input type="checkbox"/>	Nonpoint source pollution control
		<input type="checkbox"/>	Reestablished natural water drainage and treatment
Water Supply			
<input type="checkbox"/>	Water Supply Reliability	<input checked="" type="checkbox"/>	Water Conservation
<input type="checkbox"/>	Conjunctive Use		
Flood Management			
<input checked="" type="checkbox"/>	Decreased flood risk by reducing runoff rate and/or volume	<input type="checkbox"/>	Reduced sanitary sewer overflows
Environmental			
<input type="checkbox"/>	Environmental and habitat protection and improvement including: wetland enhancement/creation; riparian enhancement/creation; increased urban green space, and/or instream flow improvement	<input type="checkbox"/>	Reduced energy use, greenhouse gas emissions, or provides a carbon sink
		<input type="checkbox"/>	Reestablishment of the natural hydrograph
		<input checked="" type="checkbox"/>	Water temperature improvements
Community			
<input type="checkbox"/>	Employment opportunities provided	<input type="checkbox"/>	Community involvement
<input type="checkbox"/>	Public Education	<input type="checkbox"/>	Enhance and/or create recreational and public use areas

Describe/Quantify the storm water benefits of the project. First check whether the storm water benefit is a 'primary' or 'secondary' benefit. All primary benefits MUST be quantified. See Table A below for guidance.

Storm Water Management Benefit		Quantitative Metric Unit (see Table A)	Benefit Assessment			Description/Quantity
Water Quality		(indicate if a TMDL pollutant or if impairing a 303(d) listed waterbody)	<input checked="" type="checkbox"/> No pollutant removal	<input type="checkbox"/> Partial removal in discharge	<input type="checkbox"/> Removal below an appropriate permit or TMDL threshold	
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary					
Water Supply			<input type="checkbox"/> No infiltration or planned use	<input checked="" type="checkbox"/> Potential for infiltration and/or capture and reuse	<input type="checkbox"/> Large-scale infiltration and/or capture and reuse.	
<input type="checkbox"/> Primary	<input checked="" type="checkbox"/> Secondary					
Flood Management			<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Storm Water Management Benefit		Quantitative Metric Unit (see Table A)	Benefit Assessment			Description/Quantity
<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary		No flood management benefit	Alleviates minor flooding issues	Alleviates major flooding issues	
Environmental						
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary		<input checked="" type="checkbox"/> No environmental benefit	<input type="checkbox"/> Qualitative environmental benefit	<input type="checkbox"/> Quantitative environmental benefit	
Community						
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary		<input type="checkbox"/> No community benefit	<input type="checkbox"/> Medium community benefit	<input type="checkbox"/> High community benefit	

Please describe any modeling that has been completed for the project:

Have the benefits of your project been modeled or quantified (yes/no): _____

List the BMP(s) included in this project and indicate if modeling was completed for each BMP:

1. _____
2. _____
3. _____

Please share the following modeled information, as applicable (additional rows may be added as needed):

Approx. BMP Footprint Area (sq feet)	
Drainage Area (sq feet)	3494 ACRES
Imperviousness of Drainage Area (%)	
Volume of 85 th percentile-24-hour storm event (cubic ft)	
Volume of dry weather runoff (cubic ft)	
Ponding Depth (ft)	24
Mulch Depth (ft)	
Planting Mix Depth (ft)	
Gravel Layer Depth (ft) and media mix (i.e., mulch, planting mix, gravel, etc.)	
Storage Volume (accounting for porosity) (cubic ft)	569 Acre-ft
Expected percentage of the 85 th percentile-24-hour storm event captured (%)	

Please indicate to what extent your project addresses the following:

Is the project included in a Storm Water Resources Plan that is consistent with the Water Code requirements and Storm Water Resource Plan Guidelines?

☒ Yes ☐ No ☐ Not Sure

Is the project consistent with the applicable water quality control plan (Basin Plan)?

☒ Yes ☐ No ☐ Not Sure

Does the project create permanent, local, or regional funding? (i.e., a dedicated source of funding)

☒ Yes ☐ No ☐ Not Sure

Is the project located on lands in public ownership

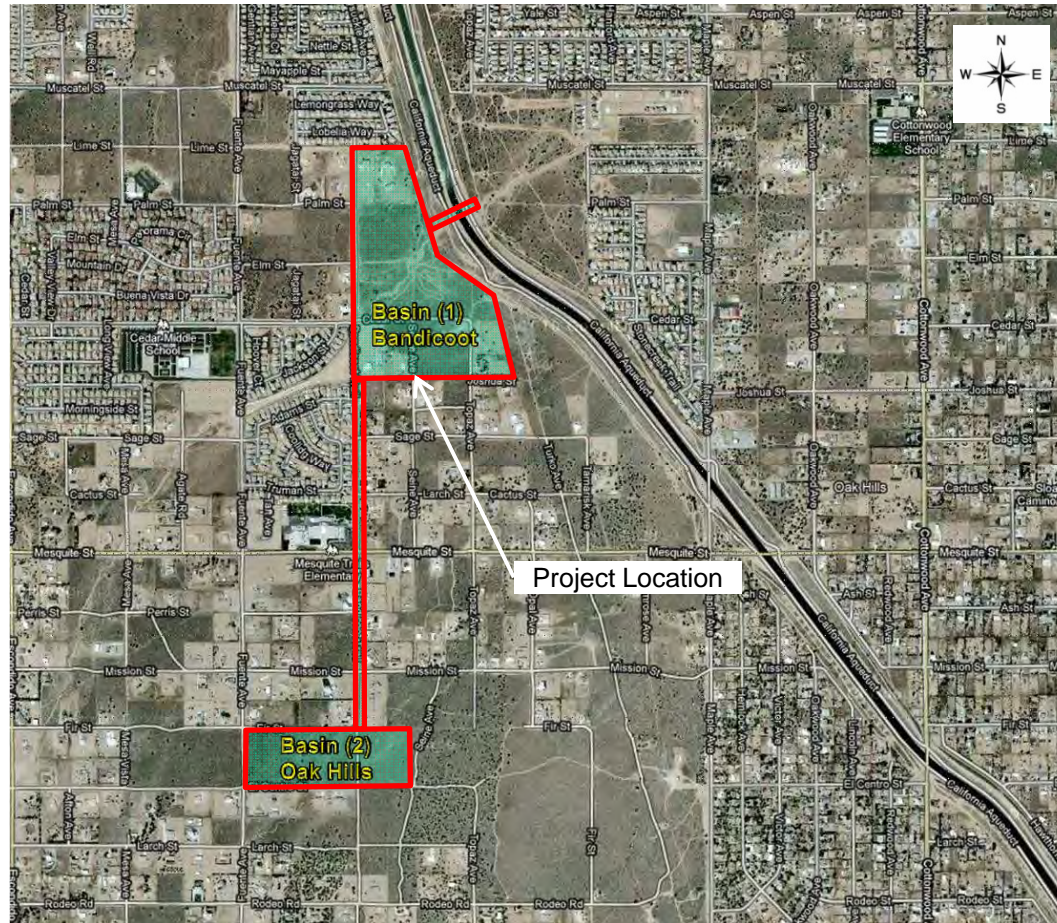
☒ Yes ☐ No ☐ Not Sure

If yes, please identify the public ownership: _____

Table A. Benefit Metrics

Benefit	Example	Metric Unit(s)
Water Quality	Increased filtration and/or treatment of runoff	Pollutant Load Reduction: pounds (lbs)/day; kilograms (kg)/day; milligram/Liter; microgram /Liter; most probable number of bacteria or indicator organisms (mpn)/mL Volume Treated: million gallons per day (mgd); acre-feet per year (afy)
	Nonpoint source pollution control	
	Reestablished natural water drainage and treatment	
Water Supply	Water supply reliability	Volume Captured (in terms of augmentation/replacement of water supply, or reduced dependence on imported water): million gallons per day (mgd); acre-feet per year (afy); Cost: dollars per volume per year (of augmented water supply)
	Water conservation	
	Conjunctive use	
Flood Management	Decreased flood risk by reducing runoff rate and/or volume	Rate, Volume, and/or Size: cubic feet per second (cfs); acre-feet (af); cubic feet (cf); acres (ac); or linear feet (LF)
	Reduced sanitary sewer overflows	
Environmental	Environmental and habitat protection and improvement, including: wetland enhancement/creation; riparian enhancement; and/or instream flow improvement	Size and/or Rate: acres (ac); cubic feet per second (cfs); carbon sequestration (megagrams of carbon per area) Other: area units of landscape and buffer measure of improved hydrology number of biotic structure number of physical structures; reduced temperature (degrees)
	Increased urban green space	
	Reduced energy use, greenhouse gas emissions, or provides a carbon sink	
	Reestablishment of the natural hydrograph	
	Water temperature improvements	
Community	Enhanced and/or created recreational and public use areas	Size of population served; number of people; number of jobs; acres
	Community involvement	
	Employment opportunities provided	

Note: Table A is based on Table 3 in the Storm Water Resources Plan Guidelines, prepared by the State Water Resources Control Board.



County of San Bernardino

PROJECT LIMITS

Work Order No. F01417

Latitude: 34.407205

Longitude: -117.356825



COUNTY OF SAN BERNARDINO
DEPARTMENT OF PUBLIC WORKS

BANDICOOT BASIN

Mojave Integrated Regional Water Management Plan

Storm Water Funding Project Identification – Addendum

To the extent possible this form should be electronically filled out and e-mailed to comments@mywaterplan.com. Items denoted with an asterisk are required.

Please provide the following information regarding the project sponsor and proposed project. Use this Addendum if the project is already on the Existing IRWM Plan List and has completed a Long-Form. If you are submitting a new project for the storm water funding, complete a separate Storm Water Long-Form.

Implementing Agency/ Organization / Individual: *

San Bernardino County Flood Control District

Project Name: *

Desert Knolls Wash – Phase III

Either the latitude/longitude or a location description is required. To determine the latitude/longitude, use the closest address or intersection. If the project is linear, use the furthest upstream latitude/longitude.

Project Latitude: 34.5357

Project Longitude: -117.2788

Location Description:

The project is located in the town of Apple Valley of the county of San Bernardino. The project limits are along Desert Knolls Wash, approximately 2,800 linear feet, from confluence with Mojave River on the west to the existing concrete trapezoidal channel on the east.

Cost Estimate Update (capital and O&M):

\$11,702,068

Source of Funding:

Local Fund

% Funding Match:

Schedule/Status Update:

The project is 35% complete. Environmental documents have not started yet.
Ready to advertise in 2018

Contact Information: *

Michael Fam

Project Manager

[Tel:909-387-8124](tel:909-387-8124)

Fax: 909-387-7801

Email: mfam@dpw.sbcounty.gov

Please provide a brief project description. If your project addresses a water quality issue, please indicate what the applicable permit pollutant for the project if any, what pollutants are removed by the project, or at minimum what pollutants have limits that apply to the project.

The purpose of the flood improvements is to provide flood protection to the property adjacent to the wash and to maintain, as much as possible, the integrity of the riparian habitat; sensitive wetland downstream; cultural and biological resources as well as maintain high water quality standards in accordance with the Lahontan Regional Water Quality Control Board.

Does your Project service a Disadvantaged Community or an Economically Distressed Area?

General Project Information

Watershed Name:

Mojave River Watershed

Land Uses in Drainage Basin (i.e., single-family residential, multi-family residential, education, open space, commercial):

San Bernardino County experienced rapid growth and development activity in the past few decades which significantly impacted the water quality of the area and the Mojave River. A major factor impacting water quality and beneficial uses of the Mojave River is urban runoff from development growth in this area of San Bernardino County, including significant development activity in the Town of Apple Valley surrounding the Desert Knolls Wash Plan project area.

Existing land uses in the immediate project area include a mix of vacant parcels, single and multiple-family residential, and a variety of commercial uses including retail, fast food, auto service establishments and professional offices (Figure 4-1). State Highway 18, a major arterial road, is also located north of, and running parallel with, the project area. These uses and associated activities result in the introduction of various visible and non-visible pollutants into the project area such as general trash and contaminated urban runoff containing waste oil, pesticides and other such pollutants.

Drainage Basin Area:

Applicable 303(d) listed water bodies:

Applicable Total Maximum Daily Loads (TMDLs):

Please indicate to what extent your project contributes to the following Storm Water Management Benefits. At a minimum, projects should address two Main Benefits listed below in accordance with the Storm Water Resources Plan Guidelines.

Main Benefit		Additional Benefits	
Water Quality			
<input checked="" type="checkbox"/>	Increased filtration and/or treatment of runoff	<input type="checkbox"/>	Nonpoint source pollution control
		<input type="checkbox"/>	Reestablished natural water drainage and treatment
Water Supply			
<input type="checkbox"/>	Water Supply Reliability	<input checked="" type="checkbox"/>	Water Conservation
<input type="checkbox"/>	Conjunctive Use		
Flood Management			
<input checked="" type="checkbox"/>	Decreased flood risk by reducing runoff rate and/or volume	<input type="checkbox"/>	Reduced sanitary sewer overflows
Environmental			
<input type="checkbox"/>	Environmental and habitat protection and improvement including: wetland enhancement/creation; riparian enhancement/creation; increased urban green space, and/or instream flow improvement	<input type="checkbox"/>	Reduced energy use, greenhouse gas emissions, or provides a carbon sink
		<input type="checkbox"/>	Reestablishment of the natural hydrograph
		<input checked="" type="checkbox"/>	Water temperature improvements
Community			
<input type="checkbox"/>	Employment opportunities provided	<input type="checkbox"/>	Community involvement
<input type="checkbox"/>	Public Education	<input type="checkbox"/>	Enhance and/or create recreational and public use areas

Describe/Quantify the storm water benefits of the project. First check whether the storm water benefit is a 'primary' or 'secondary' benefit. All primary benefits MUST be quantified. See Table A below for guidance.

Storm Water Management Benefit		Quantitative Metric Unit (see Table A)	Benefit Assessment			Description/Quantity
Water Quality		(indicate if a TMDL pollutant or if impairing a 303(d) listed waterbody)	<input checked="" type="checkbox"/> No pollutant removal	<input type="checkbox"/> Partial removal in discharge	<input type="checkbox"/> Removal below an appropriate permit or TMDL threshold	
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary					
Water Supply			<input type="checkbox"/> No infiltration or planned use	<input checked="" type="checkbox"/> Potential for infiltration and/or capture and reuse	<input type="checkbox"/> Large-scale infiltration and/or capture and reuse.	
<input type="checkbox"/> Primary	<input checked="" type="checkbox"/> Secondary					
Flood Management			<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Storm Water Management Benefit		Quantitative Metric Unit (see Table A)	Benefit Assessment			Description/Quantity
<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary		No flood management benefit	Alleviates minor flooding issues	Alleviates major flooding issues	
Environmental						
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary		<input checked="" type="checkbox"/> No environmental benefit	<input type="checkbox"/> Qualitative environmental benefit	<input type="checkbox"/> Quantitative environmental benefit	
Community						
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary		<input type="checkbox"/> No community benefit	<input type="checkbox"/> Medium community benefit	<input type="checkbox"/> High community benefit	

Please describe any modeling that has been completed for the project:

Have the benefits of your project been modeled or quantified (yes/no): YES

List the BMP(s) included in this project and indicate if modeling was completed for each BMP:

1. _____
2. _____
3. _____

Please share the following modeled information, as applicable (additional rows may be added as needed):

Approx. BMP Footprint Area (sq feet)	
Drainage Area (sq feet)	
Imperviousness of Drainage Area (%)	
Volume of 85 th percentile-24-hour storm event (cubic ft)	
Volume of dry weather runoff (cubic ft)	
Ponding Depth (ft)	
Mulch Depth (ft)	
Planting Mix Depth (ft)	
Gravel Layer Depth (ft) and media mix (i.e., mulch, planting mix, gravel, etc.)	
Storage Volume (accounting for porosity) (cubic ft)	
Expected percentage of the 85 th percentile-24-hour storm event	

captured (%)	
--------------	--

Please indicate to what extent your project addresses the following:

Is the project included in a Storm Water Resources Plan that is consistent with the Water Code requirements and Storm Water Resource Plan Guidelines?

☒ **Yes** ☐ **No** ☐ **Not Sure**

Is the project consistent with the applicable water quality control plan (Basin Plan)?

☒ **Yes** ☐ **No** ☐ **Not Sure**

Does the project create permanent, local, or regional funding? (i.e., a dedicated source of funding)

☒ **Yes** ☐ **No** ☐ **Not Sure**

Is the project located on lands in public ownership

☒ **Yes** ☐ **No** ☐ **Not Sure**

If yes, please identify the public ownership: _____

Table A. Benefit Metrics

Benefit	Example	Metric Unit(s)
Water Quality	Increased filtration and/or treatment of runoff	Pollutant Load Reduction: pounds (lbs)/day; kilograms (kg)/day; milligram/Liter; microgram /Liter; most probable number of bacteria or indicator organisms (mpn)/mL Volume Treated: million gallons per day (mgd); acre-feet per year (afy)
	Nonpoint source pollution control	
	Reestablished natural water drainage and treatment	
Water Supply	Water supply reliability	Volume Captured (in terms of augmentation/replacement of water supply, or reduced dependence on imported water): million gallons per day (mgd); acre-feet per year (afy); Cost: dollars per volume per year (of augmented water supply)
	Water conservation	
	Conjunctive use	
Flood Management	Decreased flood risk by reducing runoff rate and/or volume	Rate, Volume, and/or Size: cubic feet per second (cfs); acre-feet (af); cubic feet (cf); acres (ac); or linear feet (LF)
	Reduced sanitary sewer overflows	
Environmental	Environmental and habitat protection and improvement, including: wetland enhancement/creation; riparian enhancement; and/or instream flow improvement	Size and/or Rate: acres (ac); cubic feet per second (cfs); carbon sequestration (megagrams of carbon per area) Other: area units of landscape and buffer measure of improved hydrology number of biotic structure number of physical structures; reduced temperature (degrees)
	Increased urban green space	
	Reduced energy use, greenhouse gas emissions, or provides a carbon sink	
	Reestablishment of the natural hydrograph	
	Water temperature improvements	
Community	Enhanced and/or created recreational and public use areas	Size of population served; number of people; number of jobs; acres
	Community involvement	
	Employment opportunities provided	

Note: Table A is based on Table 3 in the Storm Water Resources Plan Guidelines, prepared by the State Water Resources Control Board.

Mojave Integrated Regional Water Management Plan

Storm Water Funding Project Identification – Addendum

To the extent possible this form should be electronically filled out and e-mailed to comments@mywaterplan.com. Items denoted with an asterisk are required.

Please provide the following information regarding the project sponsor and proposed project. Use this Addendum if the project is already on the Existing IRWM Plan List and has completed a Long-Form. If you are submitting a new project for the storm water funding, complete a separate Storm Water Long-Form.

Implementing Agency/ Organization / Individual: *

San Bernardino County Flood Control District

Project Name: *

Donnell Basin (Phase I & II)

Either the latitude/longitude or a location description is required. To determine the latitude/longitude, use the closest address or intersection. If the project is linear, use the furthest upstream latitude/longitude.

Project Latitude: 34.1376

Project Longitude: -116.0643

Location Description:

Donnell Basin is located in the City of Twentynine Palms area, bounded by Twentynine Palms Highway on the south, Mesquite Spring Road on the west, El Paseo Drive on the north, and Split Rock Avenue on the east.

Cost Estimate Update (capital and O&M):

Estimated Cost is \$6.5 Million

Source of Funding:

Local Fund

% Funding Match:

Schedule/Status Update:

Project is 40% complete. Ready to advertise late 2018. Construction is estimated to be complete in 18 month

Contact Information: *

Michael Fam
Project Manager
[Tel:909-387-8124](tel:909-387-8124)
Fax: 909-387-7801
Email: mfam@dpw.sbcounty.gov

Please provide a brief project description. If your project addresses a water quality issue, please indicate what the applicable permit pollutant for the project if any, what pollutants are removed by the project, or at minimum what pollutants have limits that apply to the project.

The project is for the construction of a detention/recharge basin. the project will include the re-construction of existing inlet and outlet channels, basin embankments, basin outlets - emergency spillway and Reinforced Concrete Box (RCB), construction of drainage inlets, access roads 20 feet wide on top of embankments and around the basin, and access ramps 20 feet wide. Donnell Basin is a regional detention facility in accordance with the Twentynine Palms Master Plan of Drainage.

Does your Project service a Disadvantaged Community or an Economically Distressed Area?

Yes

General Project Information

Watershed Name:

Southern Mojave

Land Uses in Drainage Basin (i.e., single-family residential, multi-family residential, education, open space, commercial):

Single and multi-residential, commercial area and the majority of the drainage area is natural/agricultural

Drainage Basin Area:

11,112 Acres

Applicable 303(d) listed water bodies:

Applicable Total Maximum Daily Loads (TMDLs):

Please indicate to what extent your project contributes to the following Storm Water Management Benefits. At a minimum, projects should address two Main Benefits listed below in accordance with the Storm Water Resources Plan Guidelines.

		Main Benefit		Additional Benefits
Water Quality				
	<input checked="" type="checkbox"/>	Increased filtration and/or treatment of runoff	<input type="checkbox"/>	Nonpoint source pollution control
			<input type="checkbox"/>	Reestablished natural water drainage and treatment
Water Supply				
	<input type="checkbox"/>	Water Supply Reliability	<input checked="" type="checkbox"/>	Water Conservation
	<input type="checkbox"/>	Conjunctive Use		
Flood Management				
	<input checked="" type="checkbox"/>	Decreased flood risk by reducing runoff rate and/or volume	<input type="checkbox"/>	Reduced sanitary sewer overflows

Environmental			
<input type="checkbox"/>	Environmental and habitat protection and improvement including: wetland enhancement/creation; riparian enhancement/creation; increased urban green space, and/or instream flow improvement	<input type="checkbox"/>	Reduced energy use, greenhouse gas emissions, or provides a carbon sink
		<input type="checkbox"/>	Reestablishment of the natural hydrograph
		<input type="checkbox"/>	Water temperature improvements
Community			
<input type="checkbox"/>	Employment opportunities provided	<input type="checkbox"/>	Community involvement
<input type="checkbox"/>	Public Education	<input type="checkbox"/>	Enhance and/or create recreational and public use areas

Describe/Quantify the storm water benefits of the project. First check whether the storm water benefit is a 'primary' or 'secondary' benefit. All primary benefits MUST be quantified. See Table A below for guidance.

Storm Water Management Benefit		Quantitative Metric Unit (see Table A)	Benefit Assessment			Description/Quantity
Water Quality		<i>(indicate if a TMDL pollutant or if impairing a 303(d) listed waterbody)</i>	<input checked="" type="checkbox"/> No pollutant removal	<input type="checkbox"/> Partial removal in discharge	<input type="checkbox"/> Removal below an appropriate permit or TMDL threshold	
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary					
Water Supply			<input type="checkbox"/> No infiltration or planned use	<input checked="" type="checkbox"/> Potential for infiltration and/or capture and reuse	<input type="checkbox"/> Large-scale infiltration and/or capture and reuse.	
<input type="checkbox"/> Primary	<input checked="" type="checkbox"/> Secondary					
Flood Management			<input type="checkbox"/> No flood management benefit	<input type="checkbox"/> Alleviates minor flooding issues	<input checked="" type="checkbox"/> Alleviates major flooding issues	
<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary					
Environmental			<input checked="" type="checkbox"/> No environmental benefit	<input type="checkbox"/> Qualitative environmental benefit	<input type="checkbox"/> Quantitative environmental benefit	
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary					
Community			<input type="checkbox"/> No community benefit	<input type="checkbox"/> Medium community benefit	<input checked="" type="checkbox"/> High community benefit	
<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary					

Please describe any modeling that has been completed for the project:

Have the benefits of your project been modeled or quantified (yes/no): _____

List the BMP(s) included in this project and indicate if modeling was completed for each BMP:

1. _____
2. _____
3. _____

Please share the following modeled information, as applicable (additional rows may be added as needed):

Approx. BMP Footprint Area (sq feet)	
Drainage Area (sq feet)	11,112 Acres
Imperviousness of Drainage Area (%)	
Volume of 85 th percentile-24-hour storm event (cubic ft)	
Volume of dry weather runoff (cubic ft)	
Ponding Depth (ft)	
Mulch Depth (ft)	
Planting Mix Depth (ft)	
Gravel Layer Depth (ft) and media mix (i.e., mulch, planting mix, gravel, etc.)	
Storage Volume (accounting for porosity) (cubic ft)	326 Ac Ft (per Twentynine Palms MPD0
Expected percentage of the 85 th percentile-24-hour storm event captured (%)	

Please indicate to what extent your project addresses the following:

Is the project included in a Storm Water Resources Plan that is consistent with the Water Code requirements and Storm Water Resource Plan Guidelines?

☒ Yes ☐ No ☐ Not Sure

Is the project consistent with the applicable water quality control plan (Basin Plan)?

☒ Yes ☐ No ☐ Not Sure

Does the project create permanent, local, or regional funding? (i.e., a dedicated source of funding)

☒ Yes ☐ No ☐ Not Sure

Is the project located on lands in public ownership

☒ Yes ☐ No ☐ Not Sure

If yes, please identify the public ownership: _____

Table A. Benefit Metrics

Benefit	Example	Metric Unit(s)
Water Quality	Increased filtration and/or treatment of runoff	Pollutant Load Reduction: pounds (lbs)/day; kilograms (kg)/day; milligram/Liter; microgram /Liter; most probable number of bacteria or indicator organisms (mpn)/mL Volume Treated: million gallons per day (mgd); acre-feet per year (afy)
	Nonpoint source pollution control	
	Reestablished natural water drainage and treatment	
Water Supply	Water supply reliability	Volume Captured (in terms of augmentation/replacement of water supply, or reduced dependence on imported water): million gallons per day (mgd); acre-feet per year (afy); Cost: dollars per volume per year (of augmented water supply)
	Water conservation	
	Conjunctive use	
Flood Management	Decreased flood risk by reducing runoff rate and/or volume	Flood reduction: Inflow =6,670 cfs Outflow =5,120 cfs Basin Storage = 326 Ac Ft (Per Twenty-nine Palms Master Plan of Drainage)
	Reduced sanitary sewer overflows	
Environmental	Environmental and habitat protection and improvement, including: wetland enhancement/creation; riparian enhancement; and/or instream flow improvement	Size and/or Rate: acres (ac); cubic feet per second (cfs); carbon sequestration (megagrams of carbon per area) Other: area units of landscape and buffer measure of improved hydrology number of biotic structure number of physical structures; reduced temperature (degrees)
	Increased urban green space	
	Reduced energy use, greenhouse gas emissions, or provides a carbon sink	
	Reestablishment of the natural hydrograph	
	Water temperature improvements	
Community	Enhanced and/or created recreational and public use areas	Size of population served; number of people; number of jobs; acres
	Community involvement	
	Employment opportunities provided	

Note: Table A is based on Table 3 in the Storm Water Resources Plan Guidelines, prepared by the State Water Resources Control Board.



County of San Bernardino

PROJECT LOCATION

Latitude: 34.1376

Longitude: -116.0643



COUNTY OF SAN BERNARDINO
DEPARTMENT OF PUBLIC WORKS

DONNELL BASIN

Mojave Integrated Regional Water Management Plan

Storm Water Funding Project Identification – Addendum

To the extent possible this form should be electronically filled out and e-mailed to comments@mywaterplan.com. Items denoted with an asterisk are required.

Please provide the following information regarding the project sponsor and proposed project. Use this Addendum if the project is already on the Existing IRWM Plan List and has completed a Long-Form. If you are submitting a new project for the storm water funding, complete a separate Storm Water Long-Form.

Implementing Agency/ Organization / Individual: *

San Bernardino County Flood Control District

Project Name: *

Ranchero Basin

Either the latitude/longitude or a location description is required. To determine the latitude/longitude, use the closest address or intersection. If the project is linear, use the furthest upstream latitude/longitude.

Project Latitude: 34.3811

Project Longitude: -117.3058

Location Description:

Ranchero Basin is located in the City of Hesperia. The proposed basin to be located upstream of the proposed Ranchero Road realignment on the Antelope Valley Wash. The excessively large width of the wash in the vicinity allows enough acreage for the proposed basin with only minimal excavation.

Cost Estimate Update (capital and O&M):

\$32.5 Million

Source of Funding:

Local Fund

% Funding Match:

Schedule/Status Update:

The project is currently in the preliminary design phase with construction planned beyond the District 10-yr plan. Construction is expected take 12 months to complete.

Contact Information: *

Michael Fam

Project Manager

[Tel:909-387-8124](tel:909-387-8124)

Fax: 909-387-7801

Email: mfam@dpw.sbcounty.gov

Please provide a brief project description. If your project addresses a water quality issue, please indicate what the applicable permit pollutant for the project if any, what pollutants are removed by the project, or at minimum what pollutants have limits that apply to the project.

The Ranchero Basin Project consists of the construction of a detention basin located within the City of Hesperia in San Bernardino County. The proposed Ranchero Basin is addressed in the Hesperia Master Plan of Drainage and is considered a Regional Facility. The basin will intercept and detain flows from its tributary watersheds and subsequently convey flows at a reduced rate. The project will include an embankment (max height of 27'), a spillway, an outlet structures, access roads around the basin and access ramps to the basin floor. The Ranchero Basin project being proposed for funding is a component of an overall effort to reduce the risk of flooding to properties downstream, enhance public safety and provide ground water recharge. The proposed basin will maintain stability in overdrafted groundwater basins and is listed as high importance project per the latest Mojave Water IRWM plan (2014)

Does your Project service a Disadvantaged Community or an Economically Distressed Area?

Yes

General Project Information

Watershed Name:

Mojave River Watershed

Land Uses in Drainage Basin (i.e., single-family residential, multi-family residential, education, open space, commercial):

Drainage Basin Area:

Applicable 303(d) listed water bodies:

Applicable Total Maximum Daily Loads (TMDLs):

Please indicate to what extent your project contributes to the following Storm Water Management Benefits. At a minimum, projects should address two Main Benefits listed below in accordance with the Storm Water Resources Plan Guidelines.

	Main Benefit		Additional Benefits
Water Quality			
<input checked="" type="checkbox"/>	Increased filtration and/or treatment of runoff	<input type="checkbox"/>	Nonpoint source pollution control
		<input type="checkbox"/>	Reestablished natural water drainage and treatment
Water Supply			
<input type="checkbox"/>	Water Supply Reliability	<input checked="" type="checkbox"/>	Water Conservation
<input type="checkbox"/>	Conjunctive Use		
Flood Management			

<input checked="" type="checkbox"/>	Decreased flood risk by reducing runoff rate and/or volume	<input type="checkbox"/>	Reduced sanitary sewer overflows
Environmental			
<input type="checkbox"/>	Environmental and habitat protection and improvement including: wetland enhancement/creation; riparian enhancement/creation; increased urban green space, and/or instream flow improvement	<input type="checkbox"/>	Reduced energy use, greenhouse gas emissions, or provides a carbon sink
		<input type="checkbox"/>	Reestablishment of the natural hydrograph
		<input type="checkbox"/>	Water temperature improvements
Community			
<input type="checkbox"/>	Employment opportunities provided	<input type="checkbox"/>	Community involvement
<input type="checkbox"/>	Public Education	<input type="checkbox"/>	Enhance and/or create recreational and public use areas

Describe/Quantify the storm water benefits of the project. First check whether the storm water benefit is a 'primary' or 'secondary' benefit. All primary benefits MUST be quantified. See Table A below for guidance.

Storm Water Management Benefit		Quantitative Metric Unit (see Table A)	Benefit Assessment			Description/Quantity
Water Quality		(indicate if a TMDL pollutant or if impairing a 303(d) listed waterbody)	<input checked="" type="checkbox"/> No pollutant removal	<input type="checkbox"/> Partial removal in discharge	<input type="checkbox"/> Removal below an appropriate permit or TMDL threshold	
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary					
Water Supply			<input type="checkbox"/> No infiltration or planned use	<input checked="" type="checkbox"/> Potential for infiltration and/or capture and reuse	<input type="checkbox"/> Large-scale infiltration and/or capture and reuse.	
<input type="checkbox"/> Primary	<input checked="" type="checkbox"/> Secondary					
Flood Management			<input type="checkbox"/> No flood management benefit	<input type="checkbox"/> Alleviates minor flooding issues	<input checked="" type="checkbox"/> Alleviates major flooding issues	
<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary					
Environmental			<input checked="" type="checkbox"/> No environmental benefit	<input type="checkbox"/> Qualitative environmental benefit	<input type="checkbox"/> Quantitative environmental benefit	
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary					
Community			<input type="checkbox"/> No community benefit	<input type="checkbox"/> Medium community benefit	<input checked="" type="checkbox"/> High community benefit	
<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary					

Please describe any modeling that has been completed for the project:

Have the benefits of your project been modeled or quantified (yes/no): _____

List the BMP(s) included in this project and indicate if modeling was completed for each BMP:

1. _____
2. _____
3. _____

Please share the following modeled information, as applicable (additional rows may be added as needed):

Approx. BMP Footprint Area (sq feet)	
Drainage Area (sq feet)	7,513 Acres
Imperviousness of Drainage Area (%)	
Volume of 85 th percentile-24-hour storm event (cubic ft)	
Volume of dry weather runoff (cubic ft)	
Ponding Depth (ft)	
Mulch Depth (ft)	
Planting Mix Depth (ft)	
Gravel Layer Depth (ft) and media mix (i.e., mulch, planting mix, gravel, etc.)	
Storage Volume (accounting for porosity) (cubic ft)	730 Acre-Ft.
Expected percentage of the 85 th percentile-24-hour storm event captured (%)	

Please indicate to what extent your project addresses the following:

Is the project included in a Storm Water Resources Plan that is consistent with the Water Code requirements and Storm Water Resource Plan Guidelines?

☒ Yes ☐ No ☐ Not Sure

Is the project consistent with the applicable water quality control plan (Basin Plan)?

☒ Yes ☐ No ☐ Not Sure

Does the project create permanent, local, or regional funding? (i.e., a dedicated source of funding)

☒ Yes ☐ No ☐ Not Sure

Is the project located on lands in public ownership

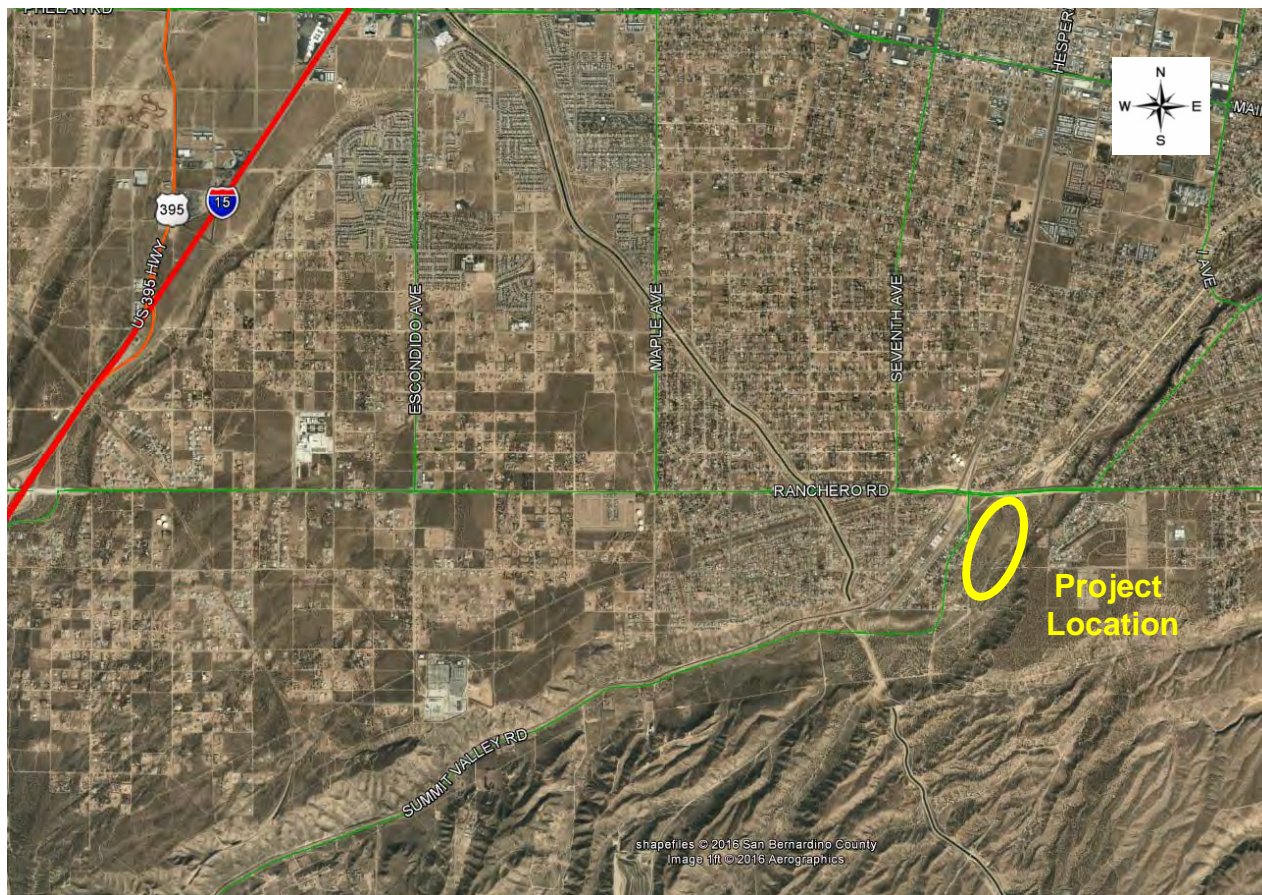
☒ Yes ☐ No ☐ Not Sure

If yes, please identify the public ownership: _____

Table A. Benefit Metrics

Benefit	Example	Metric Unit(s)
Water Quality	Increased filtration and/or treatment of runoff	Pollutant Load Reduction: pounds (lbs)/day; kilograms (kg)/day; milligram/Liter; microgram /Liter; most probable number of bacteria or indicator organisms (mpn)/mL Volume Treated: million gallons per day (mgd); acre-feet per year (afy)
	Nonpoint source pollution control	
	Reestablished natural water drainage and treatment	
Water Supply	Water supply reliability	Volume Captured (in terms of augmentation/replacement of water supply, or reduced dependence on imported water): million gallons per day (mgd); acre-feet per year (afy); Cost: dollars per volume per year (of augmented water supply)
	Water conservation	
	Conjunctive use	
Flood Management	Decreased flood risk by reducing runoff rate and/or volume	Flood reduction: Inflow = 9,127 cfs – Outflow = 3,011 cfs Basin Storage = 730 Ac Ft (Per Hesperia Master Plan of Drainage)
	Reduced sanitary sewer overflows	
Environmental	Environmental and habitat protection and improvement, including: wetland enhancement/creation; riparian enhancement; and/or instream flow improvement	Size and/or Rate: acres (ac); cubic feet per second (cfs); carbon sequestration (megagrams of carbon per area) Other: area units of landscape and buffer measure of improved hydrology number of biotic structure number of physical structures; reduced temperature (degrees)
	Increased urban green space	
	Reduced energy use, greenhouse gas emissions, or provides a carbon sink	
	Reestablishment of the natural hydrograph	
	Water temperature improvements	
Community	Enhanced and/or created recreational and public use areas	Size of population served; number of people; number of jobs; acres
	Community involvement	
	Employment opportunities provided	

Note: Table A is based on Table 3 in the Storm Water Resources Plan Guidelines, prepared by the State Water Resources Control Board.



County of San Bernardino

PROJECT LOCATION

Latitude: 34.3811

Longitude: -117.3058



COUNTY OF SAN BERNARDINO
DEPARTMENT OF PUBLIC WORKS

RANCHERO BASIN

Mojave Integrated Regional Water Management Plan

Storm Water Funding Project Identification – Addendum

To the extent possible this form should be electronically filled out and e-mailed to comments@mywaterplan.com. Items denoted with an asterisk are required.

Please provide the following information regarding the project sponsor and proposed project. Use this Addendum if the project is already on the Existing IRWM Plan List and has completed a Long-Form. If you are submitting a new project for the storm water funding, complete a separate Storm Water Long-Form.

Implementing Agency/ Organization / Individual: *

San Bernardino County Flood Control District

Project Name: *

Tussing/Juniper Basin

Either the latitude/longitude or a location description is required. To determine the latitude/longitude, use the closest address or intersection. If the project is linear, use the furthest upstream latitude/longitude.

Project Latitude: 34.4352

Project Longitude: -117.1947

Location Description:

It is located in the Town of Apple Valley area east of Juniper Road, approximately 500 ft south of Tussing Ranch Road.

Cost Estimate Update (capital and O&M):

\$

Source of Funding:

Local Fund

% Funding Match:

Schedule/Status Update:

Contact Information: *

Michael Fam

Project Manager

[Tel:909-387-8124](tel:909-387-8124)

Fax: 909-387-7801

Email: mfam@dpw.sbcounty.gov

Please provide a brief project description. If your project addresses a water quality issue, please indicate what the applicable permit pollutant for the project if any, what pollutants are removed by the project, or at minimum what pollutants have limits that apply to the project.

The project consists of the construction of a detention basin. The main purpose of Tussing-Juniper Basin is to provide flood control protection to the homes and businesses situated downstream of the basin. It is also an opportunity for water recharge. This detention basin was proposed in the Town of Apple Valley MPD and found to be cost effective.

Does your Project service a Disadvantaged Community or an Economically Distressed Area?

General Project Information

Watershed Name:

Mojave River Watershed

Land Uses in Drainage Basin (i.e., single-family residential, multi-family residential, education, open space, commercial):

Open Space

Drainage Basin Area:

Applicable 303(d) listed water bodies:

Applicable Total Maximum Daily Loads (TMDLs):

Please indicate to what extent your project contributes to the following Storm Water Management Benefits. At a minimum, projects should address two Main Benefits listed below in accordance with the Storm Water Resources Plan Guidelines.

	Main Benefit		Additional Benefits
Water Quality			
<input checked="" type="checkbox"/>	Increased filtration and/or treatment of runoff	<input type="checkbox"/>	Nonpoint source pollution control
		<input type="checkbox"/>	Reestablished natural water drainage and treatment
Water Supply			
<input type="checkbox"/>	Water Supply Reliability	<input checked="" type="checkbox"/>	Water Conservation
<input type="checkbox"/>	Conjunctive Use		
Flood Management			
<input checked="" type="checkbox"/>	Decreased flood risk by reducing runoff rate and/or volume	<input type="checkbox"/>	Reduced sanitary sewer overflows
Environmental			
<input type="checkbox"/>	Environmental and habitat protection and improvement including: wetland	<input type="checkbox"/>	Reduced energy use, greenhouse gas emissions, or provides a carbon sink

	enhancement/creation; riparian enhancement/creation; increased urban green space, and/or instream flow improvement	<input type="checkbox"/>	Reestablishment of the natural hydrograph
		<input checked="" type="checkbox"/>	Water temperature improvements
Community			
<input type="checkbox"/>	Employment opportunities provided	<input type="checkbox"/>	Community involvement
<input type="checkbox"/>	Public Education	<input type="checkbox"/>	Enhance and/or create recreational and public use areas

Describe/Quantify the storm water benefits of the project. First check whether the storm water benefit is a 'primary' or 'secondary' benefit. All primary benefits MUST be quantified. See Table A below for guidance.

Storm Water Management Benefit		Quantitative Metric Unit (see Table A)	Benefit Assessment			Description/Quantity
Water Quality		(indicate if a TMDL pollutant or if impairing a 303(d) listed waterbody)	<input checked="" type="checkbox"/> No pollutant removal	<input type="checkbox"/> Partial removal in discharge	<input type="checkbox"/> Removal below an appropriate permit or TMDL threshold	
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary					
Water Supply			<input type="checkbox"/> No infiltration or planned use	<input checked="" type="checkbox"/> Potential for infiltration and/or capture and reuse	<input type="checkbox"/> Large-scale infiltration and/or capture and reuse.	
<input type="checkbox"/> Primary	<input checked="" type="checkbox"/> Secondary					
Flood Management			<input type="checkbox"/> No flood management benefit	<input type="checkbox"/> Alleviates minor flooding issues	<input checked="" type="checkbox"/> Alleviates major flooding issues	
<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary					
Environmental			<input checked="" type="checkbox"/> No environmental benefit	<input type="checkbox"/> Qualitative environmental benefit	<input type="checkbox"/> Quantitative environmental benefit	
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary					
Community			<input type="checkbox"/> No community benefit	<input type="checkbox"/> Medium community benefit	<input type="checkbox"/> High community benefit	
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary					

Please describe any modeling that has been completed for the project:

Have the benefits of your project been modeled or quantified (yes/no): _____

List the BMP(s) included in this project and indicate if modeling was completed for each BMP:

1. _____
2. _____
3. _____

Please share the following modeled information, as applicable (additional rows may be added as needed):

Approx. BMP Footprint Area (sq feet)	
Drainage Area (sq feet)	
Imperviousness of Drainage Area (%)	
Volume of 85 th percentile-24-hour storm event (cubic ft)	
Volume of dry weather runoff (cubic ft)	
Ponding Depth (ft)	
Mulch Depth (ft)	
Planting Mix Depth (ft)	
Gravel Layer Depth (ft) and media mix (i.e., mulch, planting mix, gravel, etc.)	
Storage Volume (accounting for porosity) (cubic ft)	
Expected percentage of the 85 th percentile-24-hour storm event captured (%)	

Please indicate to what extent your project addresses the following:

Is the project included in a Storm Water Resources Plan that is consistent with the Water Code requirements and Storm Water Resource Plan Guidelines?

☒ Yes ☐ No ☐ Not Sure

Is the project consistent with the applicable water quality control plan (Basin Plan)?

☒ Yes ☐ No ☐ Not Sure

Does the project create permanent, local, or regional funding? (i.e., a dedicated source of funding)

☒ Yes ☐ No ☐ Not Sure

Is the project located on lands in public ownership

☒ Yes ☐ No ☐ Not Sure

If yes, please identify the public ownership: _____

Table A. Benefit Metrics

Benefit	Example	Metric Unit(s)
Water Quality	Increased filtration and/or treatment of runoff	Pollutant Load Reduction: pounds (lbs)/day; kilograms (kg)/day; milligram/Liter; microgram /Liter; most probable number of bacteria or indicator organisms (mpn)/mL Volume Treated: million gallons per day (mgd); acre-feet per year (afy)
	Nonpoint source pollution control	
	Reestablished natural water drainage and treatment	
Water Supply	Water supply reliability	Volume Captured (in terms of augmentation/replacement of water supply, or reduced dependence on imported water): million gallons per day (mgd); acre-feet per year (afy); Cost: dollars per volume per year (of augmented water supply)
	Water conservation	
	Conjunctive use	
Flood Management	Decreased flood risk by reducing runoff rate and/or volume	Rate, Volume, and/or Size: cubic feet per second (cfs); acre-feet (af); cubic feet (cf); acres (ac); or linear feet (LF)
	Reduced sanitary sewer overflows	
Environmental	Environmental and habitat protection and improvement, including: wetland enhancement/creation; riparian enhancement; and/or instream flow improvement	Size and/or Rate: acres (ac); cubic feet per second (cfs); carbon sequestration (megagrams of carbon per area) Other: area units of landscape and buffer measure of improved hydrology number of biotic structure number of physical structures; reduced temperature (degrees)
	Increased urban green space	
	Reduced energy use, greenhouse gas emissions, or provides a carbon sink	
	Reestablishment of the natural hydrograph	
	Water temperature improvements	
Community	Enhanced and/or created recreational and public use areas	Size of population served; number of people; number of jobs; acres
	Community involvement	
	Employment opportunities provided	

Note: Table A is based on Table 3 in the Storm Water Resources Plan Guidelines, prepared by the State Water Resources Control Board.



County of San Bernardino

PROJECT LOCATION

Latitude: 34.4352

Longitude: -117.1947



COUNTY OF SAN BERNARDINO
DEPARTMENT OF PUBLIC WORKS

TUSSING/JUNIPER
BASIN

Mojave Integrated Regional Water Management Plan

Storm Water Funding Project Identification – Addendum

To the extent possible this form should be electronically filled out and e-mailed to comments@mywaterplan.com. Items denoted with an asterisk are required.

Please provide the following information regarding the project sponsor and proposed project. Use this Addendum if the project is already on the Existing IRWM Plan List and has completed a Long-Form. If you are submitting a new project for the storm water funding, complete a separate Storm Water Long-Form.

Implementing Agency/ Organization / Individual: *

San Bernardino County Flood Control District

Project Name: *

Mesa Linda

Either the latitude/longitude or a location description is required. To determine the latitude/longitude, use the closest address or intersection. If the project is linear, use the furthest upstream latitude/longitude.

Project Latitude: 34.4341

Project Longitude: -117.3876

Location Description:

The Mesa Linda Basin project is located in the City of Victorville along the Oro Grande Wash. It is just upstream of the California Aqueduct approximately 0.6 mile west of Interstate 15, 0.7 mile north of Phelan Road and 0.5 mile east of 395 Hwy.

Cost Estimate Update (capital and O&M):

Source of Funding:

Local Fund

% Funding Match:

Schedule/Status Update:

Contact Information: *

Michael Fam

Project Manager

[Tel:909-387-8124](tel:909-387-8124)

Fax: 909-387-7801

Email: mfam@dpw.sbcounty.gov

Please provide a brief project description. If your project addresses a water quality issue, please indicate what the applicable permit pollutant for the project if any, what pollutants are removed by the project, or at minimum what pollutants have limits that apply to the project.

The project is for the construction of a detention/recharge basin. The Mesa Linda Basin project is located in the City of Victorville along the Oro Grande Wash. It is just upstream of the California Aqueduct approximately 0.6 mile west of Interstate 15, 0.7 mile north of Phelan Road and 0.5 mile east of 395 Hwy. Mesa Linda Basin is an element of an overall project that consists of the construction of three storm water detention basins: a primary basin, Amethyst to be constructed in 2017, Mesa Linda Basin and Seneca/Bus Barn Basin that will be phased in at a later date. This project is an opportunity for water recharge.

Does your Project service a Disadvantaged Community or an Economically Distressed Area?

Yes

General Project Information

Watershed Name:

Mojave Watershed

Land Uses in Drainage Basin (i.e., single-family residential, multi-family residential, education, open space, commercial):

Drainage Basin Area:

Applicable 303(d) listed water bodies:

Applicable Total Maximum Daily Loads (TMDLs):

Please indicate to what extent your project contributes to the following Storm Water Management Benefits. At a minimum, projects should address two Main Benefits listed below in accordance with the Storm Water Resources Plan Guidelines.

		Main Benefit		Additional Benefits
Water Quality				
	<input checked="" type="checkbox"/>	Increased filtration and/or treatment of runoff	<input type="checkbox"/>	Nonpoint source pollution control
			<input type="checkbox"/>	Reestablished natural water drainage and treatment
Water Supply				
	<input type="checkbox"/>	Water Supply Reliability	<input checked="" type="checkbox"/>	Water Conservation
	<input type="checkbox"/>	Conjunctive Use		
Flood Management				
	<input checked="" type="checkbox"/>	Decreased flood risk by reducing runoff rate and/or volume	<input type="checkbox"/>	Reduced sanitary sewer overflows
Environmental				

<input type="checkbox"/>	Environmental and habitat protection and improvement including: wetland enhancement/creation; riparian enhancement/creation; increased urban green space, and/or instream flow improvement	<input type="checkbox"/>	Reduced energy use, greenhouse gas emissions, or provides a carbon sink
		<input type="checkbox"/>	Reestablishment of the natural hydrograph
		<input type="checkbox"/>	Water temperature improvements
Community			
<input type="checkbox"/>	Employment opportunities provided	<input type="checkbox"/>	Community involvement
<input type="checkbox"/>	Public Education	<input type="checkbox"/>	Enhance and/or create recreational and public use areas

Describe/Quantify the storm water benefits of the project. First check whether the storm water benefit is a 'primary' or 'secondary' benefit. All primary benefits MUST be quantified. See Table A below for guidance.

Storm Water Management Benefit		Quantitative Metric Unit (see Table A)	Benefit Assessment			Description/Quantity
Water Quality		(indicate if a TMDL pollutant or if impairing a 303(d) listed waterbody)	<input checked="" type="checkbox"/> No pollutant removal	<input type="checkbox"/> Partial removal in discharge	<input type="checkbox"/> Removal below an appropriate permit or TMDL threshold	
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary					
Water Supply			<input type="checkbox"/> No infiltration or planned use	<input checked="" type="checkbox"/> Potential for infiltration and/or capture and reuse	<input type="checkbox"/> Large-scale infiltration and/or capture and reuse.	
<input type="checkbox"/> Primary	<input checked="" type="checkbox"/> Secondary					
Flood Management			<input type="checkbox"/> No flood management benefit	<input type="checkbox"/> Alleviates minor flooding issues	<input checked="" type="checkbox"/> Alleviates major flooding issues	
<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary					
Environmental			<input checked="" type="checkbox"/> No environmental benefit	<input type="checkbox"/> Qualitative environmental benefit	<input type="checkbox"/> Quantitative environmental benefit	
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary					
Community			<input type="checkbox"/> No community benefit	<input type="checkbox"/> Medium community benefit	<input checked="" type="checkbox"/> High community benefit	
<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary					

Please describe any modeling that has been completed for the project:

Have the benefits of your project been modeled or quantified (yes/no): _____

List the BMP(s) included in this project and indicate if modeling was completed for each BMP:

1. _____
2. _____
3. _____

Please share the following modeled information, as applicable (additional rows may be added as needed):

Approx. BMP Footprint Area (sq feet)	
Drainage Area (sq feet)	
Imperviousness of Drainage Area (%)	
Volume of 85 th percentile-24-hour storm event (cubic ft)	
Volume of dry weather runoff (cubic ft)	
Ponding Depth (ft)	
Mulch Depth (ft)	
Planting Mix Depth (ft)	
Gravel Layer Depth (ft) and media mix (i.e., mulch, planting mix, gravel, etc.)	
Storage Volume (accounting for porosity) (cubic ft)	317 Ac Ft
Expected percentage of the 85 th percentile-24-hour storm event captured (%)	

Please indicate to what extent your project addresses the following:

Is the project included in a Storm Water Resources Plan that is consistent with the Water Code requirements and Storm Water Resource Plan Guidelines?

☒ Yes ☐ No ☐ Not Sure

Is the project consistent with the applicable water quality control plan (Basin Plan)?

☒ Yes ☐ No ☐ Not Sure

Does the project create permanent, local, or regional funding? (i.e., a dedicated source of funding)

☒ Yes ☐ No ☐ Not Sure

Is the project located on lands in public ownership

☐ Yes ☐ No ☐ Not Sure

If yes, please identify the public ownership: _____

Table A. Benefit Metrics

Benefit	Example	Metric Unit(s)
Water Quality	Increased filtration and/or treatment of runoff	Pollutant Load Reduction: pounds (lbs)/day; kilograms (kg)/day; milligram/Liter; microgram /Liter; most probable number of bacteria or indicator organisms (mpn)/mL Volume Treated: million gallons per day (mgd); acre-feet per year (afy)
	Nonpoint source pollution control	
	Reestablished natural water drainage and treatment	
Water Supply	Water supply reliability	Volume Captured (in terms of augmentation/replacement of water supply, or reduced dependence on imported water): million gallons per day (mgd); acre-feet per year (afy); Cost: dollars per volume per year (of augmented water supply)
	Water conservation	
	Conjunctive use	
Flood Management	Decreased flood risk by reducing runoff rate and/or volume	Flood reduction: Inflow = 4,816 cfs Outflow = 1,671 cfs Basin Storage = 317 Ac Ft (Per the Oro Grande Wash Detention Basin Study)
	Reduced sanitary sewer overflows	
Environmental	Environmental and habitat protection and improvement, including: wetland enhancement/creation; riparian enhancement; and/or instream flow improvement	Size and/or Rate: acres (ac); cubic feet per second (cfs); carbon sequestration (megagrams of carbon per area) Other: area units of landscape and buffer measure of improved hydrology number of biotic structure number of physical structures; reduced temperature (degrees)
	Increased urban green space	
	Reduced energy use, greenhouse gas emissions, or provides a carbon sink	
	Reestablishment of the natural hydrograph	
	Water temperature improvements	
Community	Enhanced and/or created recreational and public use areas	Size of population served; number of people; number of jobs; acres
	Community involvement	
	Employment opportunities provided	

Note: Table A is based on Table 3 in the Storm Water Resources Plan Guidelines, prepared by the State Water Resources Control Board.



County of San Bernardino

PROJECT LOCATION

Latitude: 34. 4341

Longitude: -117.3876



COUNTY OF SAN BERNARDINO
DEPARTMENT OF PUBLIC WORKS

MESA LINDA BASIN

Mojave Integrated Regional Water Management Plan

Storm Water Funding Project Identification – Addendum

To the extent possible this form should be electronically filled out and e-mailed to comments@mywaterplan.com. Items denoted with an asterisk are required.

Please provide the following information regarding the project sponsor and proposed project. Use this Addendum if the project is already on the Existing IRWM Plan List and has completed a Long-Form. If you are submitting a new project for the storm water funding, complete a separate Storm Water Long-Form.

Implementing Agency/ Organization / Individual: *

San Bernardino County Flood Control District

Project Name: *

Oak Hills Basin

Either the latitude/longitude or a location description is required. To determine the latitude/longitude, use the closest address or intersection. If the project is linear, use the furthest upstream latitude/longitude.

Project Latitude: 34. 3867

Project Longitude: -117.3747

Location Description:

Oak Hills Basin to be constructed upstream of Bandicoot Basin. It is located at the northwest corner of Ranchero Road and Escondido Avenue bounded by Ranchero to the south, Foley Road to the west, Larch Street to the north and Escondido Avenue to the east.

Cost Estimate Update (capital and O&M):

Source of Funding:

Local Fund

% Funding Match:

Schedule/Status Update:

Contact Information: *

Michael Fam
Project Manager
[Tel:909-387-8124](tel:909-387-8124)
Fax: 909-387-7801
Email: mfam@dpw.sbcounty.gov

Please provide a brief project description. If your project addresses a water quality issue, please indicate what the applicable permit pollutant for the project if any, what pollutants are removed by the project, or at minimum what pollutants have limits that apply to the project.

The project is for the construction of a detention/recharge basin.

The design of the proposed basin will include multiple features such as: inlet and outlet structures; channels and/or closed conduits; transition structures; headwalls and wingwalls, and basin embankments. Additionally, access roadways along tops of the embankments and around the basin, and access ramps to the basin floor. Due to rapid development and less properties available for the construction of Bandicoot basin it was necessary to construct a second basin "Oak Hills Basin" upstream of Bandicoot Basin to accommodate for the flow and the construction of the downsized basin. The proposed Oak Hills Basin to be located upstream of Bandicoot Basin

The project includes construction of two storm water detention basins: a primary basin (Bandicoot), and a secondary basin (Oak Hills Basin) that will be phased in at a later date. The basin is an opportunity for water discharge.

Does your Project service a Disadvantaged Community or an Economically Distressed Area?

Yes

General Project Information

Watershed Name:

Mojave Watershed

Land Uses in Drainage Basin (i.e., single-family residential, multi-family residential, education, open space, commercial):

Drainage Basin Area:

Applicable 303(d) listed water bodies:

Applicable Total Maximum Daily Loads (TMDLs):

Please indicate to what extent your project contributes to the following Storm Water Management Benefits. At a minimum, projects should address two Main Benefits listed below in accordance with the Storm Water Resources Plan Guidelines.

		Main Benefit			Additional Benefits
Water Quality					
	<input checked="" type="checkbox"/>	Increased filtration and/or treatment of runoff		<input type="checkbox"/>	Nonpoint source pollution control
				<input type="checkbox"/>	Reestablished natural water drainage and treatment
Water Supply					
	<input type="checkbox"/>	Water Supply Reliability		<input checked="" type="checkbox"/>	Water Conservation
	<input type="checkbox"/>	Conjunctive Use			
Flood Management					

<input checked="" type="checkbox"/>	Decreased flood risk by reducing runoff rate and/or volume	<input type="checkbox"/>	Reduced sanitary sewer overflows
Environmental			
<input type="checkbox"/>	Environmental and habitat protection and improvement including: wetland enhancement/creation; riparian enhancement/creation; increased urban green space, and/or instream flow improvement	<input type="checkbox"/>	Reduced energy use, greenhouse gas emissions, or provides a carbon sink
		<input type="checkbox"/>	Reestablishment of the natural hydrograph
		<input type="checkbox"/>	Water temperature improvements
Community			
<input type="checkbox"/>	Employment opportunities provided	<input type="checkbox"/>	Community involvement
<input type="checkbox"/>	Public Education	<input type="checkbox"/>	Enhance and/or create recreational and public use areas

Describe/Quantify the storm water benefits of the project. First check whether the storm water benefit is a 'primary' or 'secondary' benefit. All primary benefits MUST be quantified. See Table A below for guidance.

Storm Water Management Benefit		Quantitative Metric Unit (see Table A)	Benefit Assessment			Description/Quantity
Water Quality		(indicate if a TMDL pollutant or if impairing a 303(d) listed waterbody)	<input checked="" type="checkbox"/> No pollutant removal	<input type="checkbox"/> Partial removal in discharge	<input type="checkbox"/> Removal below an appropriate permit or TMDL threshold	
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary					
Water Supply			<input type="checkbox"/> No infiltration or planned use	<input checked="" type="checkbox"/> Potential for infiltration and/or capture and reuse	<input type="checkbox"/> Large-scale infiltration and/or capture and reuse.	
<input type="checkbox"/> Primary	<input checked="" type="checkbox"/> Secondary					
Flood Management			<input type="checkbox"/> No flood management benefit	<input type="checkbox"/> Alleviates minor flooding issues	<input checked="" type="checkbox"/> Alleviates major flooding issues	
<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary					
Environmental			<input checked="" type="checkbox"/> No environmental benefit	<input type="checkbox"/> Qualitative environmental benefit	<input type="checkbox"/> Quantitative environmental benefit	
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary					
Community			<input type="checkbox"/> No community benefit	<input type="checkbox"/> Medium community benefit	<input checked="" type="checkbox"/> High community benefit	
<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary					

Please describe any modeling that has been completed for the project:

Have the benefits of your project been modeled or quantified (yes/no): _____

List the BMP(s) included in this project and indicate if modeling was completed for each BMP:

1. _____
2. _____
3. _____

Please share the following modeled information, as applicable (additional rows may be added as needed):

Approx. BMP Footprint Area (sq feet)	
Drainage Area (sq feet)	
Imperviousness of Drainage Area (%)	
Volume of 85 th percentile-24-hour storm event (cubic ft)	
Volume of dry weather runoff (cubic ft)	
Ponding Depth (ft)	
Mulch Depth (ft)	
Planting Mix Depth (ft)	
Gravel Layer Depth (ft) and media mix (i.e., mulch, planting mix, gravel, etc.)	
Storage Volume (accounting for porosity) (cubic ft)	
Expected percentage of the 85 th percentile-24-hour storm event captured (%)	

Please indicate to what extent your project addresses the following:

Is the project included in a Storm Water Resources Plan that is consistent with the Water Code requirements and Storm Water Resource Plan Guidelines?
☒ Yes ☐ No ☐ Not Sure

Is the project consistent with the applicable water quality control plan (Basin Plan)?
☒ Yes ☐ No ☐ Not Sure

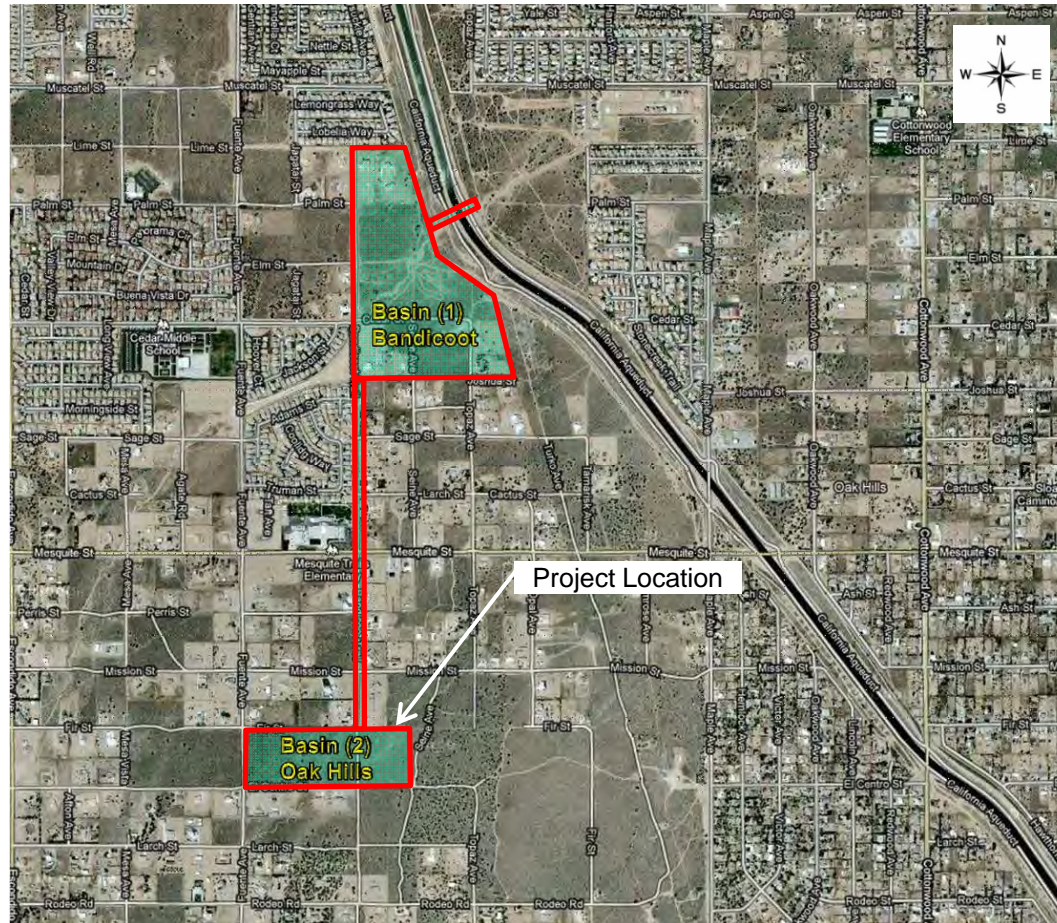
Does the project create permanent, local, or regional funding? (i.e., a dedicated source of funding)
☒ Yes ☐ No ☐ Not Sure

Is the project located on lands in public ownership
☐ Yes ☐ No ☐ Not Sure
If yes, please identify the public ownership: _____

Table A. Benefit Metrics

Benefit	Example	Metric Unit(s)
Water Quality	Increased filtration and/or treatment of runoff	Pollutant Load Reduction: pounds (lbs)/day; kilograms (kg)/day; milligram/Liter; microgram /Liter; most probable number of bacteria or indicator organisms (mpn)/mL Volume Treated: million gallons per day (mgd); acre-feet per year (afy)
	Nonpoint source pollution control	
	Reestablished natural water drainage and treatment	
Water Supply	Water supply reliability	Volume Captured (in terms of augmentation/replacement of water supply, or reduced dependence on imported water): million gallons per day (mgd); acre-feet per year (afy); Cost: dollars per volume per year (of augmented water supply)
	Water conservation	
	Conjunctive use	
Flood Management	Decreased flood risk by reducing runoff rate and/or volume	Flood reduction: Inflow = cfs Outflow = cfs Basin Storage = Ac Ft (Per the Oro Grande Wash Detention Basin Study)
	Reduced sanitary sewer overflows	
Environmental	Environmental and habitat protection and improvement, including: wetland enhancement/creation; riparian enhancement; and/or instream flow improvement	Size and/or Rate: acres (ac); cubic feet per second (cfs); carbon sequestration (megagrams of carbon per area) Other: area units of landscape and buffer measure of improved hydrology number of biotic structure number of physical structures; reduced temperature (degrees)
	Increased urban green space	
	Reduced energy use, greenhouse gas emissions, or provides a carbon sink	
	Reestablishment of the natural hydrograph	
	Water temperature improvements	
Community	Enhanced and/or created recreational and public use areas	Size of population served; number of people; number of jobs; acres
	Community involvement	
	Employment opportunities provided	

Note: Table A is based on Table 3 in the Storm Water Resources Plan Guidelines, prepared by the State Water Resources Control Board.



County of San Bernardino

PROJECT LIMITS

Work Order No. F01417

Latitude: 34.3867

Longitude: -117.3747



COUNTY OF SAN BERNARDINO
DEPARTMENT OF PUBLIC WORKS

OAK HILLS BASIN

Mojave Integrated Regional Water Management Plan

Storm Water Funding Project Identification – Addendum

To the extent possible this form should be electronically filled out and e-mailed to comments@mywaterplan.com. Items denoted with an asterisk are required.

Please provide the following information regarding the project sponsor and proposed project. Use this Addendum if the project is already on the Existing IRWM Plan List and has completed a Long-Form. If you are submitting a new project for the storm water funding, complete a separate Storm Water Long-Form.

Implementing Agency/ Organization / Individual: *

San Bernardino County Flood Control District

Project Name: *

Seneca Basin

Either the latitude/longitude or a location description is required. To determine the latitude/longitude, use the closest address or intersection. If the project is linear, use the furthest upstream latitude/longitude.

Project Latitude: 34. 5145

Project Longitude: -117. 2999

Location Description:

The Seneca/Bus Barn Basin project is located in the City of Victorville. It is west of Hesperia Road, 0.3 mile north of Seneca Road and approximately 1.2 mile east of Interstate 15

Cost Estimate Update (capital and O&M):

Source of Funding:

Local Fund

% Funding Match:

Schedule/Status Update:

Contact Information: *

Michael Fam

Project Manager

[Tel:909-387-8124](tel:909-387-8124)

Fax: 909-387-7801

Email: mfam@dpw.sbcounty.gov

Please provide a brief project description. If your project addresses a water quality issue, please indicate what the applicable permit pollutant for the project if any, what pollutants are removed by the project, or at minimum what pollutants have limits that apply to the project.

The project is for the construction of a detention/recharge basin.
 The Basin will be earthen bottom and will include inlet, outlet and transition structures, channels and/or closed conduits, transition structures, wingwalls, headwalls, cut-off walls, basin embankments, emergency spillway, access roadways along tops of the embankments and around the basins and access ramps to the basin floor.
 Seneca/Bus Barn Basin was identified in the Victorville Master Plan of Drainage (MPD) as a priority facility for flood protection, water quality and water conservation for the High Desert area.

Does your Project service a Disadvantaged Community or an Economically Distressed Area?

Yes

General Project Information

Watershed Name:

Mojave Watershed

Land Uses in Drainage Basin (i.e., single-family residential, multi-family residential, education, open space, commercial):

Drainage Basin Area:

Applicable 303(d) listed water bodies:

Applicable Total Maximum Daily Loads (TMDLs):

Please indicate to what extent your project contributes to the following Storm Water Management Benefits. At a minimum, projects should address two Main Benefits listed below in accordance with the Storm Water Resources Plan Guidelines.

		Main Benefit		Additional Benefits
Water Quality				
	<input checked="" type="checkbox"/>	Increased filtration and/or treatment of runoff	<input type="checkbox"/>	Nonpoint source pollution control
			<input type="checkbox"/>	Reestablished natural water drainage and treatment
Water Supply				
	<input type="checkbox"/>	Water Supply Reliability	<input checked="" type="checkbox"/>	Water Conservation
	<input type="checkbox"/>	Conjunctive Use		
Flood Management				
	<input checked="" type="checkbox"/>	Decreased flood risk by reducing runoff rate and/or volume	<input type="checkbox"/>	Reduced sanitary sewer overflows
Environmental				

<input type="checkbox"/>	Environmental and habitat protection and improvement including: wetland enhancement/creation; riparian enhancement/creation; increased urban green space, and/or instream flow improvement	<input type="checkbox"/>	Reduced energy use, greenhouse gas emissions, or provides a carbon sink
		<input type="checkbox"/>	Reestablishment of the natural hydrograph
		<input type="checkbox"/>	Water temperature improvements
Community			
<input type="checkbox"/>	Employment opportunities provided	<input type="checkbox"/>	Community involvement
<input type="checkbox"/>	Public Education	<input type="checkbox"/>	Enhance and/or create recreational and public use areas

Describe/Quantify the storm water benefits of the project. First check whether the storm water benefit is a 'primary' or 'secondary' benefit. All primary benefits MUST be quantified. See Table A below for guidance.

Storm Water Management Benefit		Quantitative Metric Unit (see Table A)	Benefit Assessment			Description/Quantity
Water Quality		(indicate if a TMDL pollutant or if impairing a 303(d) listed waterbody)	<input checked="" type="checkbox"/> No pollutant removal	<input type="checkbox"/> Partial removal in discharge	<input type="checkbox"/> Removal below an appropriate permit or TMDL threshold	
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary					
Water Supply			<input type="checkbox"/> No infiltration or planned use	<input checked="" type="checkbox"/> Potential for infiltration and/or capture and reuse	<input type="checkbox"/> Large-scale infiltration and/or capture and reuse.	
<input type="checkbox"/> Primary	<input checked="" type="checkbox"/> Secondary					
Flood Management			<input type="checkbox"/> No flood management benefit	<input type="checkbox"/> Alleviates minor flooding issues	<input checked="" type="checkbox"/> Alleviates major flooding issues	
<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary					
Environmental			<input checked="" type="checkbox"/> No environmental benefit	<input type="checkbox"/> Qualitative environmental benefit	<input type="checkbox"/> Quantitative environmental benefit	
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary					
Community			<input type="checkbox"/> No community benefit	<input type="checkbox"/> Medium community benefit	<input checked="" type="checkbox"/> High community benefit	
<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary					

Please describe any modeling that has been completed for the project:

Have the benefits of your project been modeled or quantified (yes/no): _____

List the BMP(s) included in this project and indicate if modeling was completed for each BMP:

1. _____
2. _____
3. _____

Please share the following modeled information, as applicable (additional rows may be added as needed):

Approx. BMP Footprint Area (sq feet)	
Drainage Area (sq feet)	
Imperviousness of Drainage Area (%)	
Volume of 85 th percentile-24-hour storm event (cubic ft)	
Volume of dry weather runoff (cubic ft)	
Ponding Depth (ft)	
Mulch Depth (ft)	
Planting Mix Depth (ft)	
Gravel Layer Depth (ft) and media mix (i.e., mulch, planting mix, gravel, etc.)	
Storage Volume (accounting for porosity) (cubic ft)	
Expected percentage of the 85 th percentile-24-hour storm event captured (%)	

Please indicate to what extent your project addresses the following:

Is the project included in a Storm Water Resources Plan that is consistent with the Water Code requirements and Storm Water Resource Plan Guidelines?

☒ Yes ☐ No ☐ Not Sure

Is the project consistent with the applicable water quality control plan (Basin Plan)?

☒ Yes ☐ No ☐ Not Sure

Does the project create permanent, local, or regional funding? (i.e., a dedicated source of funding)

☒ Yes ☐ No ☐ Not Sure

Is the project located on lands in public ownership

☐ Yes ☐ No ☐ Not Sure

If yes, please identify the public ownership: _____

Table A. Benefit Metrics

Benefit	Example	Metric Unit(s)
Water Quality	Increased filtration and/or treatment of runoff	Pollutant Load Reduction: pounds (lbs)/day; kilograms (kg)/day; milligram/Liter; microgram /Liter; most probable number of bacteria or indicator organisms (mpn)/mL Volume Treated: million gallons per day (mgd); acre-feet per year (afy)
	Nonpoint source pollution control	
	Reestablished natural water drainage and treatment	
Water Supply	Water supply reliability	Volume Captured (in terms of augmentation/replacement of water supply, or reduced dependence on imported water): million gallons per day (mgd); acre-feet per year (afy); Cost: dollars per volume per year (of augmented water supply)
	Water conservation	
	Conjunctive use	
Flood Management	Decreased flood risk by reducing runoff rate and/or volume	Flood reduction: Inflow = cfs Outflow = cfs Basin Storage = Ac Ft (Per the Oro Grande Wash Detention Basin Study)
	Reduced sanitary sewer overflows	
Environmental	Environmental and habitat protection and improvement, including: wetland enhancement/creation; riparian enhancement; and/or instream flow improvement	Size and/or Rate: acres (ac); cubic feet per second (cfs); carbon sequestration (megagrams of carbon per area) Other: area units of landscape and buffer measure of improved hydrology number of biotic structure number of physical structures; reduced temperature (degrees)
	Increased urban green space	
	Reduced energy use, greenhouse gas emissions, or provides a carbon sink	
	Reestablishment of the natural hydrograph	
	Water temperature improvements	
Community	Enhanced and/or created recreational and public use areas	Size of population served; number of people; number of jobs; acres
	Community involvement	
	Employment opportunities provided	

Note: Table A is based on Table 3 in the Storm Water Resources Plan Guidelines, prepared by the State Water Resources Control Board.



County of San Bernardino

PROJECT LOCATION

Latitude: 34.5167

Longitude: -117.3000



COUNTY OF SAN BERNARDINO
DEPARTMENT OF PUBLIC WORKS

SENECA BASIN

Mojave Integrated Regional Water Management Plan

Storm Water Funding Project Identification – Long Form

To the extent possible this form should be electronically filled out and e-mailed to comments@mywaterplan.com. Items denoted with an asterisk are required.

PART 1: LEAD IMPLEMENTING AGENCY/ORGANIZATIONAL INFORMATION

Please provide the following information regarding the project sponsor and proposed project.

Implementing Agency/ Organization / Individual: *

City of Hesperia

Agency / Organization / Individual Address:

Possible Partnering Agencies:

Name: *

Michael Thornton

Title:

City Engineer

Telephone: *

(760) 947-1451

Fax:

Email: *

mthornton@cityofhesperia.us

Website:

<http://www.cityofhesperia.us/>

Project Name: *

Escondido Avenue Basin

Either the latitude/longitude or a location description is required. To determine the latitude/longitude, use the closest address or intersection. If the project is linear, use the furthest upstream latitude/longitude.

Project Latitude:

34°25'10.23" N

Project Longitude:

117°22'22.47" W

Location Description:	Project is located approximately 1,500 feet south of the Main Street and Escondido Avenue intersection. The East Oro Grande Wash runs adjacent to the basin and continues northerly to the Mojave River. The project location is surrounded by regional commercial buildings to the north and east sides.
------------------------------	---

Project Cooperating Agency(ies)/Organization(s)/Individual(s):

<ul style="list-style-type: none"> • City of Hesperia
<ul style="list-style-type: none"> • Kennedy/Jenks Consultants
<ul style="list-style-type: none"> • Mojave Water Agency
<ul style="list-style-type: none"> •

Project Status (e.g., new, ongoing, expansion, new phase):

New

Project Type (e.g., Conceptual, Design, Feasibility Study, Implementable Project, Implementable Program):

Design Project

PART 2: PROJECT NEED*

It is important to understand the need(s) or issue(s) that the proposed project will address and the benefits that it will provide. Information provided in this section defines the need(s) or issue(s) that the proposed project will address and will help to catalog existing need(s) or issue(s) in the Mojave IRWM Region and Mojave Storm Water Resources Plan planning area.

Please provide a 1-2 paragraph description of the need(s) or problem(s) that the project will address. As applicable, discuss the water supply need, operational efficiency need, water quality need, or resource stewardship need (e.g. ecosystem restoration, floodplain management) need. Discuss critical impacts that will occur if the proposal is not implemented.

<p>The City is proposing construction of the Escondido Avenue Basin in order to enhance flood protection, improve local water supplies, improve local water quality, reduce the region's dependence on imported water supplies and reduce sediment transport.</p>

PART 3: PROJECT DESCRIPTION*

A general description of the proposed project is needed. This section will provide information associated with the project concept, general project information, and readiness to proceed. It is recognized that much of the requested information may not be available for projects that are at a conceptual level of project development. We appreciate and need your ideas.

Please provide a 1-2 paragraph description of the project including the general project concept, what will be constructed/implemented, how the constructed project will function, and treatment methods, as appropriate.

The Escondido Avenue Basin is designed to allow a relatively large flow of storm water to enter and be discharged in a controlled manner by an outlet structure in the event of a large storm. The project consists of constructing an inlet structure to divert water from the East Oro Grande Wash to the Escondido Avenue Basin. The basin will then discharge the collected storm water through a low flow outlet to the existing storm drain channel located north of Sultana Street. Please see the Escondido Avenue Basin Exhibit for additional information.

The basin system will reduce sediment transport to the Mojave River and eliminate flooding along the East Oro Grande Wash and its surrounding streets.

Watershed Name:

Mojave River Watershed

Land Uses in Drainage Basin (i.e., single-family residential, multi-family residential, education, open space, commercial):

RC – Regional Commercial

Drainage Basin Area:

Mojave River

Applicable 303(d) listed water bodies:

Mojave River (Upper Narrows to Lower Narrows)

Applicable Total Maximum Daily Loads (TMDLs):

Fluoride, Sulfates and TDS; expected TMDL Completion Date: 2021

Please identify up to three available documents which contain information specific to the proposed project and associated benefits (this information helps determine the technical justification and feasibility):

-
-
-

How do you rate the technical feasibility of the proposed project?

<input checked="" type="checkbox"/> High	The technical feasibility is well-documented and is based on similar successful projects and/or the project uses common and widely accepted technology/practices and/or the project includes or is based on pilot studies or similar results.
<input type="checkbox"/> Medium	The project does not use common or widely accepted technology/practices, but substantial documentation is available on proposed benefits and project success.
<input type="checkbox"/> Low	The project has not been done before and technical feasibility is not adequately documented.

PART 4: IRWM PLAN OBJECTIVES ADDRESSED BY PROJECT *

Describe how the project meets any of the following Mojave IRWM Plan Objectives:

Mojave IRWM Plan Objective	Contribution			Description
1. Balance average annual future water demands with available future supplies to ensure sustainability throughout the Region between now and the 2035 planning horizon and beyond.	<input type="checkbox"/> Primary	<input checked="" type="checkbox"/> Secondary	<input type="checkbox"/> NA	Groundwater recharge helps water supply reliability.
3. Maintain stability in previously overdrafted groundwater basins and reduce overdraft in groundwater basins experiencing ongoing water table declines.	<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NA	Groundwater recharge provides supplemental water supply to the groundwater basin.
7. Provide support and assistance to Disadvantaged Communities and help facilitate projects and programs that benefit those communities.	<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	
8. Protect and restore sensitive environmental areas in coordination with land use and conservation plans to support stewardship and awareness of environmental resources.	<input type="checkbox"/> Primary	<input checked="" type="checkbox"/> Secondary	<input type="checkbox"/> NA	Project will reduce sediment transport to the Mojave River.
9. Improve stormwater management throughout the Plan area.	<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NA	Project will reduce flooding to residential areas.
2. Continue improving regional water use efficiency by implementing a portfolio of conservation actions that are regionally cost-effective.	<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	

Mojave IRWM Plan Objective	Contribution			Description
10. Preserve local beneficial uses as it relates to water quality of water supplied by each source, including groundwater, stormwater, surface water, imported water, and recycled water.	<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NA	Project will recharge stormwater currently lost to the Mojave River region, thus improving the resiliency of local groundwater supplies.
11. Obtain financial assistance from outside sources to help implement this Plan across a range of project sizes during the planning horizon.	<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	
13. Identify and establish reliable funding sources to maintain, modernize and improve water infrastructure to ensure a high quality, resilient and reliable water supply.	<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	
14. Increase the use of recycled water in the Region while maintaining compliance with the Mojave Basin Area Judgment.	<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	
4. Address the State policy goal of reducing reliance on the Delta by meeting water demands with alternative sources of supply during times when State Water Project (SWP) supplies are reduced or unavailable due to droughts, outages, environmental and regulatory restrictions, or other reasons.	<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NA	Project will recharge stormwater currently lost to the Mojave River region, reducing the dependence on imported water supplies.
5. Optimize the use of the Region's water related assets to maximize available supplies to meet projected demands while mitigating against risks. Water related assets to be optimized include financial resources, groundwater storage programs, available imported water supplies, transfer and exchange opportunities, available physical infrastructure, and management policies.	<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NA	Project will recharge stormwater to enhance local groundwater supplies.
12. Improve public awareness of water supply, conservation, water quality, and environmental stewardship challenges and opportunities throughout the planning horizon.	<input type="checkbox"/> Primary	<input checked="" type="checkbox"/> Secondary	<input type="checkbox"/> NA	Public awareness will be generated through planning and implantation of the project by public meetings and inclusion on regional planning documents.

Mojave IRWM Plan Objective	Contribution			Description
6. Prevent land subsidence throughout the Region.	<input type="checkbox"/> Primary	<input checked="" type="checkbox"/> Secondary	<input type="checkbox"/> NA	Land subsidence and groundwater overdraft will be reduced by stormwater recharge.

PART 5: RESOURCE MANAGEMENT STRATEGIES*

**Please indicate California Water Plan strategies addressed by the proposed project.
(Check all that apply)**

Reduce Water Demands			
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Agricultural Water Use Efficiency
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Urban Water Use Efficiency
Improve Operational Efficiency and Transfers			
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Conveyance – Delta, Regional/Local
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	System Reoperation
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Water Transfers
<input type="checkbox"/> Primary	<input checked="" type="checkbox"/> Secondary	<input type="checkbox"/> NA	Other (Please State): _____
Increase Water Supply			
<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NA	Conjunctive Management and Groundwater Storage
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Desalination – Brackish/Seawater
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Precipitation Enhancement
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Recycled Municipal Water
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Surface Storage – CALFED or Regional/Local
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Other (Please State): _____
Improve Water Quality			
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Drinking Water Treatment and Distribution
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Groundwater/Aquifer Remediation
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Matching Quality to Use
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Pollution Prevention
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Salt and Salinity Management
<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NA	Urban Runoff Management
<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NA	Other (Please State) <u>Reduce Sediment Transplant</u>

Practice Resource Stewardship			
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Agricultural Lands Stewardship
<input type="checkbox"/> Primary	<input checked="" type="checkbox"/> Secondary	<input type="checkbox"/> NA	Economic Incentives (loans, grants, water pricing)
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Ecosystem Restoration
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Forest Management
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Land Use Planning and Management
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Recharge Areas Protection
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Water-Dependent Recreation
<input type="checkbox"/> Primary	<input checked="" type="checkbox"/> Secondary	<input type="checkbox"/> NA	Watershed Management
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Other (Please State): _____
Improve Flood Risk Management			
<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NA	Flood Risk Management
Other Strategies			
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Please State: _____

Is the proposed project an element or phase of a regional or larger program?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
If yes, please identify the program _____	

PART 6: STORM WATER MANAGEMENT BENEFITS ADDRESSED BY PROJECT *

Please indicate to what extent your project contributes to the following Storm Water Management Benefits. At a minimum, projects should address two Main Benefits listed below in accordance with the Storm Water Resources Plan Guidelines.

Main Benefit		Additional Benefits	
Water Quality			
<input checked="" type="checkbox"/>	Increased filtration and/or treatment of runoff	<input checked="" type="checkbox"/>	Nonpoint source pollution control
		<input checked="" type="checkbox"/>	Reestablished natural water drainage and treatment
Water Supply			
<input checked="" type="checkbox"/>	Water Supply Reliability	<input type="checkbox"/>	Water Conservation
<input type="checkbox"/>	Conjunctive Use		
Flood Management			
<input checked="" type="checkbox"/>	Decreased flood risk by reducing runoff rate and/or volume	<input type="checkbox"/>	Reduced sanitary sewer overflows
Environmental			
<input type="checkbox"/>	Environmental and habitat protection and improvement including: wetland enhancement/creation; riparian enhancement/creation; increased urban green space, and/or instream flow improvement	<input checked="" type="checkbox"/>	Reduced energy use, greenhouse gas emissions, or provides a carbon sink
		<input type="checkbox"/>	Reestablishment of the natural hydrograph
		<input type="checkbox"/>	Water temperature improvements
Community			
<input type="checkbox"/>	Employment opportunities provided	<input type="checkbox"/>	Community involvement
<input type="checkbox"/>	Public Education	<input type="checkbox"/>	Enhance and/or create recreational and public use areas

Describe/Quantify the storm water benefits of the project. First check whether the storm water benefit is a 'primary' or 'secondary' benefit. All primary benefits MUST be quantified. See Table A below for guidance.

Storm Water Management Benefit		Quantitative Metric Unit (see Table A)	Benefit Assessment			Description/Quantity
Water Quality		(indicate if a TMDL pollutant or if impairing a 303(d) listed waterbody)	<input type="checkbox"/> No pollutant removal	<input checked="" type="checkbox"/> Partial removal in discharge	<input type="checkbox"/> Removal below an appropriate permit or TMDL threshold	Sediment
<input type="checkbox"/> Primary	<input checked="" type="checkbox"/> Secondary					

Storm Water Management Benefit		Quantitative Metric Unit (see Table A)	Benefit Assessment			Description/Quantity
Water Supply			<input type="checkbox"/> No infiltration or planned use	<input checked="" type="checkbox"/> Potential for infiltration and/or capture and reuse	<input type="checkbox"/> Large-scale infiltration and/or capture and reuse.	Groundwater Recharge
<input type="checkbox"/> Primary	<input checked="" type="checkbox"/> Secondary					
Flood Management			<input type="checkbox"/> No flood management benefit	<input type="checkbox"/> Alleviates minor flooding issues	<input checked="" type="checkbox"/> Alleviates major flooding issues	Basin for stormwater retention
<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary					
Environmental			<input type="checkbox"/> No environmental benefit	<input checked="" type="checkbox"/> Qualitative environmental benefit	<input type="checkbox"/> Quantitative environmental benefit	GHG Reduction
<input type="checkbox"/> Primary	<input checked="" type="checkbox"/> Secondary					
Community			<input type="checkbox"/> No community benefit	<input checked="" type="checkbox"/> Medium community benefit	<input type="checkbox"/> High community benefit	
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary					

Please indicate if your project has any of the following information:

Have the benefits of your project been modeled or quantified (yes/no): No

List the BMP(s) included in this project and indicate if modeling was completed for each BMP:

1. Detention and Infiltration Basin
2. Drainage System maintenance
3. _____

Please share the following modeled information, as applicable (additional rows may be added as needed):

Approx. BMP Footprint Area (sq feet)	
Drainage Area (sq feet)	
Imperviousness of Drainage Area (%)	
Volume of 85 th percentile-24-hour storm event (cubic ft)	
Volume of dry weather runoff (cubic ft)	
Ponding Depth (ft)	
Mulch Depth (ft)	

Planting Mix Depth (ft)	
Gravel Layer Depth (ft) and media mix (i.e., mulch, planting mix, gravel, etc.)	
Storage Volume (accounting for porosity) (cubic ft)	
Expected percentage of the 85 th percentile-24-hour storm event captured (%)	

Table A. Benefit Metrics

Benefit	Example	Metric Unit(s)
Water Quality	Increased filtration and/or treatment of runoff	Pollutant Load Reduction pounds (lbs)/day kilograms (kg)/day milligram/Liter microgram /Liter most probable number of bacteria or indicator organisms (mpn)/mL Volume Treated million gallons per day (mgd) acre-feet per year (afy)
	Nonpoint source pollution control	
	Reestablished natural water drainage and treatment	
Water Supply	Water supply reliability	Volume Captured in terms of augmentation/replacement of water supply, or reduced dependence on imported water million gallons per day (mgd) acre-feet per year (afy) Cost dollars per volume per year (of augmented water supply)
	Water conservation	
	Conjunctive use	
Flood Management	Decreased flood risk by reducing runoff rate and/or volume	Rate, Volume, and/or Size cubic feet per second (cfs) acre-feet (af) cubic feet (cf) acres or linear feet
	Reduced sanitary sewer overflows	
Environmental	Environmental and habitat protection and improvement, including: - wetland enhancement/creation; - riparian enhancement; and/or - instream flow improvement	Size and/or Rate acres cubic feet per second (cfs) carbon sequestration (megagrams of carbon per area) Other 12 area units of landscape and buffer measure of improved hydrology number of biotic structure number of physical structures reduced temperature (degrees)
	Increased urban green space	
	Reduced energy use, greenhouse gas emissions, or provides a carbon sink	
	Reestablishment of the natural hydrograph	
	Water temperature improvements	
Community	Enhanced and/or created recreational and public use areas	Size of population served number of people number of jobs acres
	Community involvement	
	Employment opportunities provided	

PART 7: PROJECT READINESS*

Item	Status (e.g., not initiated, in process, complete, N/A)	Expected Completion Date
Conceptual Plans	<u>Complete</u>	<u>3/28/2017</u> (mm/dd/yyyy)
Feasibility Study	<u>In Progress</u>	<u>8/1/2017</u> (mm/dd/yyyy)
Preliminary Design and Cost Estimates	<u>In Progress</u>	<u>10/1/2017</u> (mm/dd/yyyy)
CEQA/NEPA	<u>Not Initiated</u>	_____ (mm/dd/yyyy)
Permits	<u>Not Initiated</u>	_____ (mm/dd/yyyy)
Construction Drawings	<u>Not Initiated</u>	_____ (mm/dd/yyyy)
Funding	<u>Not Initiated</u>	_____ (mm/dd/yyyy)

For projects that do not include construction, please briefly describe the project's readiness-to proceed.

N/A

Have funding sources been identified for implementation of the project? Please provide a brief explanation.

No, the City will partner with San Bernardino County and seek grant funding to supplement local costs.

PART 8: ADDITIONAL INFORMATION

Please indicate to what extent your project addresses the following:

Is the project included in a Storm Water Resources Plan that is consistent with the Water Code requirements and Storm Water Resource Plan Guidelines?

☒ Yes ☐ No ☐ Not Sure

Is the project consistent with the applicable water quality control plan (Basin Plan)?

☒ Yes ☐ No ☐ Not Sure

Does the project create permanent, local, or regional funding? (i.e., a dedicated source of funding)

☐ Yes ☒ No ☐ Not Sure

Is the project located on lands in public ownership

☐ Yes ☐ No ☒ Not Sure

If yes, please identify the public ownership: _____

Does the project address environmental justice issues (including helping reduce inequitable distribution of environmental burdens and access to environmental goods)?

☐ Yes ☒ No ☐ Not Sure

Does the project address critical water issues (including water supply or water quality) of a disadvantaged community?

☒ Yes ☐ No ☐ Not Sure

Does the project provide specific benefits to critical water issues for Native American tribal communities?

☐ Yes ☒ No ☒ Not Sure

If yes, please identify the tribal community: _____

Is the proposed project an element or phase of a regional or larger program? ☐ Yes ☒ No

If yes, please identify the program _____

PART 9: PROJECT COST ESTIMATE

Project cost information is needed to assist in comparing benefits and costs. Additionally, knowledge of the project type and cost will assist in identifying funding sources for potential projects.

Please indicate the estimated total capital cost for project implementation. These costs include land purchase/easement, planning/design/engineering, construction/implementation, environmental compliance, administration, and contingency.

Lower estimated total capital cost (\$): 9,800,000

Upper estimated total capital cost (\$): 10,800,000

Of the total capital cost, please indicate the estimated cost for land purchase / easement (\$):
\$1,000,000

Annual Operation and Maintenance Cost (\$): \$11,200

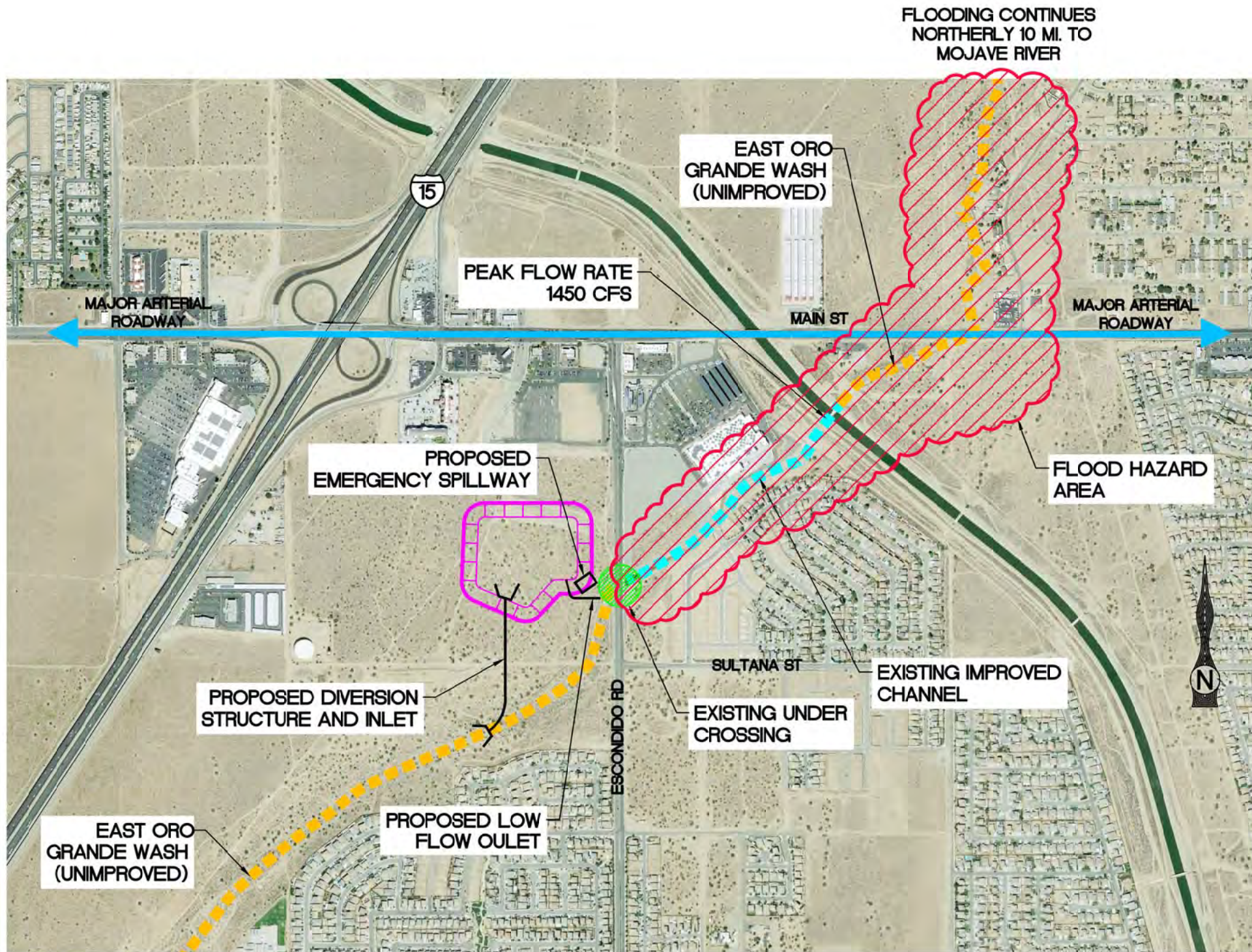
Design Life of Project (years): 20

Source of Funding: City of Hesperia, San Bernardino County, and Grants

% of Funding Match: TBD

Economic Feasibility

Is the project cost-effective?		
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Not Sure
Does the project have a positive benefit-cost ratio?		
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Not Sure



Mojave Integrated Regional Water Management Plan

Storm Water Funding Project Identification – Long Form

To the extent possible this form should be electronically filled out and e-mailed to comments@mywaterplan.com. Items denoted with an asterisk are required.

PART 1: LEAD IMPLEMENTING AGENCY/ORGANIZATIONAL INFORMATION

Please provide the following information regarding the project sponsor and proposed project.

Implementing Agency/ Organization / Individual: *

City of Hesperia

Agency / Organization / Individual Address:

Possible Partnering Agencies:

Name: *

Michael Thornton

Title:

City Engineer

Telephone: *

(760) 947-1451

Fax:

Email: *

mthornton@cityofhesperia.us

Website:

<http://www.cityofhesperia.us/>

Project Name: *

Temecula Avenue Basin

Either the latitude/longitude or a location description is required. To determine the latitude/longitude, use the closest address or intersection. If the project is linear, use the furthest upstream latitude/longitude.

Project Latitude:

34°23'58.10" N

Project Longitude:

117°14'57.98" W

Location Description:	Project is located northwest of the Arrowhead Lake Road and Mono Drive intersection. There are residential homes to the south and to the west of the proposed site's location. The existing creek borders the project on the north side.
------------------------------	--

Project Cooperating Agency(ies)/Organization(s)/Individual(s):

• City of Hesperia
• Mojave Water Agency
• San Bernardino County
•

Project Status (e.g., new, ongoing, expansion, new phase):

New

Project Type (e.g., Conceptual, Design, Feasibility Study, Implementable Project, Implementable Program):

Design Project

PART 2: PROJECT NEED*

It is important to understand the need(s) or issue(s) that the proposed project will address and the benefits that it will provide. Information provided in this section defines the need(s) or issue(s) that the proposed project will address and will help to catalog existing need(s) or issue(s) in the Mojave IRWM Region and Mojave Storm Water Resources Plan planning area.

Please provide a 1-2 paragraph description of the need(s) or problem(s) that the project will address. As applicable, discuss the water supply need, operational efficiency need, water quality need, or resource stewardship need (e.g. ecosystem restoration, floodplain management) need. Discuss critical impacts that will occur if the proposal is not implemented.

<p>The City is proposing construction of the Temecula Avenue Basin in order to enhance flood protection, improve local water supplies, improve local water quality, reduce the region's dependence on imported water supplies and reduce sediment transport.</p>
--

PART 3: PROJECT DESCRIPTION*

A general description of the proposed project is needed. This section will provide information associated with the project concept, general project information, and readiness to proceed. It is recognized that much of the requested information may not be available for projects that are at a conceptual level of project development. We appreciate and need your ideas.

Please provide a 1-2 paragraph description of the project including the general project concept, what will be constructed/implemented, how the constructed project will function, and treatment methods, as appropriate.

The Temecula basin is designed to allow a relatively large flow of storm water to enter and be a discharged in a controlled manner by an outlet structure in the event of a large storm. The project consists of constructing an inlet headwall located along the existing creek and leading into a series of two basins with a combined storage capacity of 39 ac-ft together. Water will flow from the 26 ac-ft basin to the 13ac-ft basin through an outlet spillway. The 13 ac-ft basin will then discharge storm water through a low flow outlet and storm drain connecting to the existing 96" storm drain located approximate 280 feet north of the Arrowhead Lake Road and Mono Drive intersection. Please see the Temecula Avenue Basin Exhibit for additional information.

The basin system will reduce sediment transport to the Mojave River and eliminate flooding along Arrowhead Lake Road.

Watershed Name:

Mojave River Watershed

Land Uses in Drainage Basin (i.e., single-family residential, multi-family residential, education, open space, commercial):

Residential - R1-18000 (2.1 – 2.4 du/ac)

Drainage Basin Area:

Mojave River

Applicable 303(d) listed water bodies:

Mojave River (Upper Narrows to Lower Narrows)

Applicable Total Maximum Daily Loads (TMDLs):

Fluoride, Sulfates and TDS; expected TMDL Completion Date: 2021

Please identify up to three available documents which contain information specific to the proposed project and associated benefits (this information helps determine the technical justification and feasibility):

-
-
-

How do you rate the technical feasibility of the proposed project?

<input checked="" type="checkbox"/> High	The technical feasibility is well-documented and is based on similar successful projects and/or the project uses common and widely accepted technology/practices and/or the project includes or is based on pilot studies or similar results.
<input type="checkbox"/> Medium	The project does not use common or widely accepted technology/practices, but substantial documentation is available on proposed benefits and project success.
<input type="checkbox"/> Low	The project has not been done before and technical feasibility is not adequately documented.

PART 4: IRWM PLAN OBJECTIVES ADDRESSED BY PROJECT *

Describe how the project meets any of the following Mojave IRWM Plan Objectives:

Mojave IRWM Plan Objective	Contribution			Description
1. Balance average annual future water demands with available future supplies to ensure sustainability throughout the Region between now and the 2035 planning horizon and beyond.	<input type="checkbox"/> Primary	<input checked="" type="checkbox"/> Secondary	<input type="checkbox"/> NA	Groundwater recharge helps water supply reliability.
3. Maintain stability in previously overdrafted groundwater basins and reduce overdraft in groundwater basins experiencing ongoing water table declines.	<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NA	Groundwater recharge provides supplemental water supply to the groundwater basin.
7. Provide support and assistance to Disadvantaged Communities and help facilitate projects and programs that benefit those communities.	<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	
8. Protect and restore sensitive environmental areas in coordination with land use and conservation plans to support stewardship and awareness of environmental resources.	<input type="checkbox"/> Primary	<input checked="" type="checkbox"/> Secondary	<input type="checkbox"/> NA	Project will reduce sediment transport to the Mojave River.
9. Improve stormwater management throughout the Plan area.	<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NA	Project will reduce flooding to residential areas.
2. Continue improving regional water use efficiency by implementing a portfolio of conservation actions that are regionally cost-effective.	<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	

Mojave IRWM Plan Objective	Contribution			Description
10. Preserve local beneficial uses as it relates to water quality of water supplied by each source, including groundwater, stormwater, surface water, imported water, and recycled water.	<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NA	Project will recharge stormwater currently lost to the Mojave River region, thus improving the resiliency of local groundwater supplies.
11. Obtain financial assistance from outside sources to help implement this Plan across a range of project sizes during the planning horizon.	<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	
13. Identify and establish reliable funding sources to maintain, modernize and improve water infrastructure to ensure a high quality, resilient and reliable water supply.	<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	
14. Increase the use of recycled water in the Region while maintaining compliance with the Mojave Basin Area Judgment.	<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	
4. Address the State policy goal of reducing reliance on the Delta by meeting water demands with alternative sources of supply during times when State Water Project (SWP) supplies are reduced or unavailable due to droughts, outages, environmental and regulatory restrictions, or other reasons.	<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NA	Project will recharge stormwater currently lost to the Mojave River region, reducing the dependence on imported water supplies.
5. Optimize the use of the Region's water related assets to maximize available supplies to meet projected demands while mitigating against risks. Water related assets to be optimized include financial resources, groundwater storage programs, available imported water supplies, transfer and exchange opportunities, available physical infrastructure, and management policies.	<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NA	Project will recharge stormwater to enhance local groundwater supplies.
12. Improve public awareness of water supply, conservation, water quality, and environmental stewardship challenges and opportunities throughout the planning horizon.	<input type="checkbox"/> Primary	<input checked="" type="checkbox"/> Secondary	<input type="checkbox"/> NA	Public awareness will be generated through planning and implantation of the project by public meetings and inclusion on regional planning documents.

Mojave IRWM Plan Objective	Contribution			Description
6. Prevent land subsidence throughout the Region.	<input type="checkbox"/> Primary	<input checked="" type="checkbox"/> Secondary	<input type="checkbox"/> NA	Land subsidence and groundwater overdraft will be reduced by stormwater recharge.

PART 5: RESOURCE MANAGEMENT STRATEGIES*

**Please indicate California Water Plan strategies addressed by the proposed project.
(Check all that apply)**

Reduce Water Demands			
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Agricultural Water Use Efficiency
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Urban Water Use Efficiency
Improve Operational Efficiency and Transfers			
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Conveyance – Delta, Regional/Local
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	System Reoperation
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Water Transfers
<input type="checkbox"/> Primary	<input checked="" type="checkbox"/> Secondary	<input type="checkbox"/> NA	Other (Please State): _____
Increase Water Supply			
<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NA	Conjunctive Management and Groundwater Storage
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Desalination – Brackish/Seawater
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Precipitation Enhancement
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Recycled Municipal Water
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Surface Storage – CALFED or Regional/Local
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Other (Please State): _____
Improve Water Quality			
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Drinking Water Treatment and Distribution
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Groundwater/Aquifer Remediation
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Matching Quality to Use
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Pollution Prevention
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Salt and Salinity Management
<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NA	Urban Runoff Management
<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NA	Other (Please State) <u>Reduce Sediment Transplant</u>

Practice Resource Stewardship			
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Agricultural Lands Stewardship
<input type="checkbox"/> Primary	<input checked="" type="checkbox"/> Secondary	<input type="checkbox"/> NA	Economic Incentives (loans, grants, water pricing)
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Ecosystem Restoration
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Forest Management
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Land Use Planning and Management
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Recharge Areas Protection
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Water-Dependent Recreation
<input type="checkbox"/> Primary	<input checked="" type="checkbox"/> Secondary	<input type="checkbox"/> NA	Watershed Management
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Other (Please State): _____
Improve Flood Risk Management			
<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NA	Flood Risk Management
Other Strategies			
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Please State: _____

Is the proposed project an element or phase of a regional or larger program?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
If yes, please identify the program _____	

PART 6: STORM WATER MANAGEMENT BENEFITS ADDRESSED BY PROJECT *

Please indicate to what extent your project contributes to the following Storm Water Management Benefits. At a minimum, projects should address two Main Benefits listed below in accordance with the Storm Water Resources Plan Guidelines.

		Main Benefit		Additional Benefits
Water Quality				
	<input checked="" type="checkbox"/>	Increased filtration and/or treatment of runoff	<input checked="" type="checkbox"/>	Nonpoint source pollution control
			<input checked="" type="checkbox"/>	Reestablished natural water drainage and treatment
Water Supply				
	<input checked="" type="checkbox"/>	Water Supply Reliability	<input type="checkbox"/>	Water Conservation
	<input type="checkbox"/>	Conjunctive Use		
Flood Management				
	<input checked="" type="checkbox"/>	Decreased flood risk by reducing runoff rate and/or volume	<input type="checkbox"/>	Reduced sanitary sewer overflows
Environmental				
	<input type="checkbox"/>	Environmental and habitat protection and improvement including: wetland enhancement/creation; riparian enhancement/creation; increased urban green space, and/or instream flow improvement	<input checked="" type="checkbox"/>	Reduced energy use, greenhouse gas emissions, or provides a carbon sink
			<input type="checkbox"/>	Reestablishment of the natural hydrograph
			<input type="checkbox"/>	Water temperature improvements
Community				
	<input type="checkbox"/>	Employment opportunities provided	<input type="checkbox"/>	Community involvement
	<input type="checkbox"/>	Public Education	<input type="checkbox"/>	Enhance and/or create recreational and public use areas

Describe/Quantify the storm water benefits of the project. First check whether the storm water benefit is a 'primary' or 'secondary' benefit. All primary benefits MUST be quantified. See Table A below for guidance.

Storm Water Management Benefit		Quantitative Metric Unit (see Table A)	Benefit Assessment			Description/Quantity
Water Quality		<i>(indicate if a TMDL pollutant or if impairing a 303(d) listed waterbody)</i>	<input type="checkbox"/> No pollutant removal	<input checked="" type="checkbox"/> Partial removal in discharge	<input type="checkbox"/> Removal below an appropriate permit or TMDL threshold	Sediment
<input type="checkbox"/> Primary	<input checked="" type="checkbox"/> Secondary					

Storm Water Management Benefit		Quantitative Metric Unit (see Table A)	Benefit Assessment			Description/Quantity
Water Supply			<input type="checkbox"/> No infiltration or planned use	<input checked="" type="checkbox"/> Potential for infiltration and/or capture and reuse	<input type="checkbox"/> Large-scale infiltration and/or capture and reuse.	Groundwater Recharge
<input type="checkbox"/> Primary	<input checked="" type="checkbox"/> Secondary					
Flood Management			<input type="checkbox"/> No flood management benefit	<input type="checkbox"/> Alleviates minor flooding issues	<input checked="" type="checkbox"/> Alleviates major flooding issues	39 ac-ft of stormwater retention
<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary					
Environmental			<input type="checkbox"/> No environmental benefit	<input checked="" type="checkbox"/> Qualitative environmental benefit	<input type="checkbox"/> Quantitative environmental benefit	GHG Reduction
<input type="checkbox"/> Primary	<input checked="" type="checkbox"/> Secondary					
Community			<input type="checkbox"/> No community benefit	<input checked="" type="checkbox"/> Medium community benefit	<input type="checkbox"/> High community benefit	
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary					

Please indicate if your project has any of the following information:

Have the benefits of your project been modeled or quantified (yes/no): No

List the BMP(s) included in this project and indicate if modeling was completed for each BMP:

1. Detention and Infiltration Basin
2. Drainage System maintenance
3. _____

Please share the following modeled information, as applicable (additional rows may be added as needed):

Approx. BMP Footprint Area (sq feet)	
Drainage Area (sq feet)	
Imperviousness of Drainage Area (%)	
Volume of 85 th percentile-24-hour storm event (cubic ft)	
Volume of dry weather runoff (cubic ft)	
Ponding Depth (ft)	
Mulch Depth (ft)	

Planting Mix Depth (ft)	
Gravel Layer Depth (ft) and media mix (i.e., mulch, planting mix, gravel, etc.)	
Storage Volume (accounting for porosity) (cubic ft)	
Expected percentage of the 85 th percentile-24-hour storm event captured (%)	

Table A. Benefit Metrics

Benefit	Example	Metric Unit(s)
Water Quality	Increased filtration and/or treatment of runoff	Pollutant Load Reduction pounds (lbs)/day kilograms (kg)/day milligram/Liter microgram /Liter most probable number of bacteria or indicator organisms (mpn)/mL Volume Treated million gallons per day (mgd) acre-feet per year (afy)
	Nonpoint source pollution control	
	Reestablished natural water drainage and treatment	
Water Supply	Water supply reliability	Volume Captured in terms of augmentation/replacement of water supply, or reduced dependence on imported water million gallons per day (mgd) acre-feet per year (afy) Cost dollars per volume per year (of augmented water supply)
	Water conservation	
	Conjunctive use	
Flood Management	Decreased flood risk by reducing runoff rate and/or volume	Rate, Volume, and/or Size cubic feet per second (cfs) acre-feet (af) cubic feet (cf) acres or linear feet
	Reduced sanitary sewer overflows	
Environmental	Environmental and habitat protection and improvement, including: - wetland enhancement/creation; - riparian enhancement; and/or - instream flow improvement	Size and/or Rate acres cubic feet per second (cfs) carbon sequestration (megagrams of carbon per area) Other 12 area units of landscape and buffer measure of improved hydrology number of biotic structure number of physical structures reduced temperature (degrees)
	Increased urban green space	
	Reduced energy use, greenhouse gas emissions, or provides a carbon sink	
	Reestablishment of the natural hydrograph	
	Water temperature improvements	
Community	Enhanced and/or created recreational and public use areas	Size of population served number of people number of jobs acres
	Community involvement	
	Employment opportunities provided	

PART 7: PROJECT READINESS*

Item	Status (e.g., not initiated, in process, complete, N/A)	Expected Completion Date
Conceptual Plans	<u>Complete</u>	<u>3/28/2017</u> (mm/dd/yyyy)
Feasibility Study	<u>In Progress</u>	<u>8/1/2017</u> (mm/dd/yyyy)
Preliminary Design and Cost Estimates	<u>In Progress</u>	<u>10/1/2017</u> (mm/dd/yyyy)
CEQA/NEPA	<u>Not Initiated</u>	_____ (mm/dd/yyyy)
Permits	<u>Not Initiated</u>	_____ (mm/dd/yyyy)
Construction Drawings	<u>Not Initiated</u>	_____ (mm/dd/yyyy)
Funding	<u>Not Initiated</u>	_____ (mm/dd/yyyy)

For projects that do not include construction, please briefly describe the project's readiness-to proceed.

N/A

Have funding sources been identified for implementation of the project? Please provide a brief explanation.

No, the City will partner with San Bernardino County and seek grant funding to supplement local costs.

PART 8: ADDITIONAL INFORMATION

Please indicate to what extent your project addresses the following:

Is the project included in a Storm Water Resources Plan that is consistent with the Water Code requirements and Storm Water Resource Plan Guidelines?

☒ Yes ☐ No ☐ Not Sure

Is the project consistent with the applicable water quality control plan (Basin Plan)?

☒ Yes ☐ No ☐ Not Sure

Does the project create permanent, local, or regional funding? (i.e., a dedicated source of funding)

☐ Yes ☒ No ☐ Not Sure

Is the project located on lands in public ownership

☐ Yes ☐ No ☒ Not Sure

If yes, please identify the public ownership: _____

Does the project address environmental justice issues (including helping reduce inequitable distribution of environmental burdens and access to environmental goods)?

☐ Yes ☒ No ☐ Not Sure

Does the project address critical water issues (including water supply or water quality) of a disadvantaged community?

☒ Yes ☐ No ☐ Not Sure

Does the project provide specific benefits to critical water issues for Native American tribal communities?

☐ Yes ☒ No ☒ Not Sure

If yes, please identify the tribal community: _____

Is the proposed project an element or phase of a regional or larger program? ☐ Yes ☒ No

If yes, please identify the program _____

PART 9: PROJECT COST ESTIMATE

Project cost information is needed to assist in comparing benefits and costs. Additionally, knowledge of the project type and cost will assist in identifying funding sources for potential projects.

Please indicate the estimated total capital cost for project implementation. These costs include land purchase/easement, planning/design/engineering, construction/implementation, environmental compliance, administration, and contingency.

Lower estimated total capital cost (\$): 3,900,000

Upper estimated total capital cost (\$): 4,500,000

Of the total capital cost, please indicate the estimated cost for land purchase / easement (\$):
\$570,000

Annual Operation and Maintenance Cost (\$): \$5,600

Design Life of Project (years): 20

Source of Funding: City of Hesperia, San Bernardino County, and Grants

% of Funding Match: TBD

Economic Feasibility

Is the project cost-effective?		
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Not Sure
Does the project have a positive benefit-cost ratio?		
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Not Sure

Mojave Integrated Regional Water Management Plan

Storm Water Funding Project Identification – Long Form

To the extent possible this form should be electronically filled out and e-mailed to comments@mywaterplan.com. Items denoted with an asterisk are required.

PART 1: LEAD IMPLEMENTING AGENCY/ORGANIZATIONAL INFORMATION

Please provide the following information regarding the project sponsor and proposed project.

Implementing Agency/ Organization / Individual: *

City of Hesperia

Agency / Organization / Individual Address:

Possible Partnering Agencies:

Name: *

Michael Thornton

Title:

City Engineer

Telephone: *

(760) 947-1451

Fax:

Email: *

mthornton@cityofhesperia.us

Website:

<http://www.cityofhesperia.us/>

Project Name: *

Walnut Avenue Basin

Either the latitude/longitude or a location description is required. To determine the latitude/longitude, use the closest address or intersection. If the project is linear, use the furthest upstream latitude/longitude.

Project Latitude:

34°25'28.93" N

Project Longitude:

117°19'38.55" W

Location Description:	Proposed project is located northwest of the Hickory Avenue and Walnut Street intersection. The proposed project location is surrounded by low density residential homes to the south and to the west and commercial residential to the north and east side.
------------------------------	--

Project Cooperating Agency(ies)/Organization(s)/Individual(s):

<ul style="list-style-type: none"> • City of Hesperia
<ul style="list-style-type: none"> • Kennedy/Jenks Consultants
<ul style="list-style-type: none"> • Mojave Water Agency
<ul style="list-style-type: none"> •

Project Status (e.g., new, ongoing, expansion, new phase):

Expansion

Project Type (e.g., Conceptual, Design, Feasibility Study, Implementable Project, Implementable Program):

Design Project

PART 2: PROJECT NEED*

It is important to understand the need(s) or issue(s) that the proposed project will address and the benefits that it will provide. Information provided in this section defines the need(s) or issue(s) that the proposed project will address and will help to catalog existing need(s) or issue(s) in the Mojave IRWM Region and Mojave Storm Water Resources Plan planning area.

Please provide a 1-2 paragraph description of the need(s) or problem(s) that the project will address. As applicable, discuss the water supply need, operational efficiency need, water quality need, or resource stewardship need (e.g. ecosystem restoration, floodplain management) need. Discuss critical impacts that will occur if the proposal is not implemented.

<p>The City is proposing construction of the Walnut Avenue Basin in order to enhance flood protection, improve local water supplies, improve local water quality, reduce the region's dependence on imported water supplies and reduce sediment transport.</p>
--

PART 3: PROJECT DESCRIPTION*

A general description of the proposed project is needed. This section will provide information associated with the project concept, general project information, and readiness to proceed. It is recognized that much of the requested information may not be available for projects that are at a conceptual level of project development. We appreciate and need your ideas.

Please provide a 1-2 paragraph description of the project including the general project concept, what will be constructed/implemented, how the constructed project will function, and treatment methods, as appropriate.

The Walnut Avenue basin is designed to allow a relatively large flow of storm water to enter and be discharged in a controlled manner by an outlet structure in the event of a large storm. The project consists of constructing an inlet spillway located on the north side of Walnut Avenue and leading into the 37 ac-ft basin through an energy dissipater. The 37 ac-ft basin will then discharge the collected storm water through a low flow outlet and storm drain connecting to the existing 120" storm drain located north of Main Street. Please see the Walnut Avenue Basin Exhibit for additional information.

The basin system will reduce sediment transport to the Mojave River and eliminate flooding along Walnut Avenue and Main Street.

Watershed Name:

Mojave River Watershed

Land Uses in Drainage Basin (i.e., single-family residential, multi-family residential, education, open space, commercial):

LDR – Low Density Residential

Drainage Basin Area:

Mojave River

Applicable 303(d) listed water bodies:

Mojave River (Upper Narrows to Lower Narrows)

Applicable Total Maximum Daily Loads (TMDLs):

Fluoride, Sulfates and TDS; expected TMDL Completion Date: 2021

Please identify up to three available documents which contain information specific to the proposed project and associated benefits (this information helps determine the technical justification and feasibility):

-
-
-

How do you rate the technical feasibility of the proposed project?

<input checked="" type="checkbox"/> High	The technical feasibility is well-documented and is based on similar successful projects and/or the project uses common and widely accepted technology/practices and/or the project includes or is based on pilot studies or similar results.
<input type="checkbox"/> Medium	The project does not use common or widely accepted technology/practices, but substantial documentation is available on proposed benefits and project success.
<input type="checkbox"/> Low	The project has not been done before and technical feasibility is not adequately documented.

PART 4: IRWM PLAN OBJECTIVES ADDRESSED BY PROJECT *

Describe how the project meets any of the following Mojave IRWM Plan Objectives:

Mojave IRWM Plan Objective	Contribution			Description
1. Balance average annual future water demands with available future supplies to ensure sustainability throughout the Region between now and the 2035 planning horizon and beyond.	<input type="checkbox"/> Primary	<input checked="" type="checkbox"/> Secondary	<input type="checkbox"/> NA	Groundwater recharge helps water supply reliability.
3. Maintain stability in previously overdrafted groundwater basins and reduce overdraft in groundwater basins experiencing ongoing water table declines.	<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NA	Groundwater recharge provides supplemental water supply to the groundwater basin.
7. Provide support and assistance to Disadvantaged Communities and help facilitate projects and programs that benefit those communities.	<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	
8. Protect and restore sensitive environmental areas in coordination with land use and conservation plans to support stewardship and awareness of environmental resources.	<input type="checkbox"/> Primary	<input checked="" type="checkbox"/> Secondary	<input type="checkbox"/> NA	Project will reduce sediment transport to the Mojave River.
9. Improve stormwater management throughout the Plan area.	<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NA	Project will reduce flooding to residential areas.
2. Continue improving regional water use efficiency by implementing a portfolio of conservation actions that are regionally cost-effective.	<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	

Mojave IRWM Plan Objective	Contribution			Description
10. Preserve local beneficial uses as it relates to water quality of water supplied by each source, including groundwater, stormwater, surface water, imported water, and recycled water.	<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NA	Project will recharge stormwater currently lost to the Mojave River region, thus improving the resiliency of local groundwater supplies.
11. Obtain financial assistance from outside sources to help implement this Plan across a range of project sizes during the planning horizon.	<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	
13. Identify and establish reliable funding sources to maintain, modernize and improve water infrastructure to ensure a high quality, resilient and reliable water supply.	<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	
14. Increase the use of recycled water in the Region while maintaining compliance with the Mojave Basin Area Judgment.	<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	
4. Address the State policy goal of reducing reliance on the Delta by meeting water demands with alternative sources of supply during times when State Water Project (SWP) supplies are reduced or unavailable due to droughts, outages, environmental and regulatory restrictions, or other reasons.	<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NA	Project will recharge stormwater currently lost to the Mojave River region, reducing the dependence on imported water supplies.
5. Optimize the use of the Region's water related assets to maximize available supplies to meet projected demands while mitigating against risks. Water related assets to be optimized include financial resources, groundwater storage programs, available imported water supplies, transfer and exchange opportunities, available physical infrastructure, and management policies.	<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NA	Project will recharge stormwater to enhance local groundwater supplies.
12. Improve public awareness of water supply, conservation, water quality, and environmental stewardship challenges and opportunities throughout the planning horizon.	<input type="checkbox"/> Primary	<input checked="" type="checkbox"/> Secondary	<input type="checkbox"/> NA	Public awareness will be generated through planning and implantation of the project by public meetings and inclusion on regional planning documents.

Mojave IRWM Plan Objective	Contribution			Description
6. Prevent land subsidence throughout the Region.	<input type="checkbox"/> Primary	<input checked="" type="checkbox"/> Secondary	<input type="checkbox"/> NA	Land subsidence and groundwater overdraft will be reduced by stormwater recharge.

PART 5: RESOURCE MANAGEMENT STRATEGIES*

**Please indicate California Water Plan strategies addressed by the proposed project.
(Check all that apply)**

Reduce Water Demands			
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Agricultural Water Use Efficiency
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Urban Water Use Efficiency
Improve Operational Efficiency and Transfers			
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Conveyance – Delta, Regional/Local
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	System Reoperation
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Water Transfers
<input type="checkbox"/> Primary	<input checked="" type="checkbox"/> Secondary	<input type="checkbox"/> NA	Other (Please State): _____
Increase Water Supply			
<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NA	Conjunctive Management and Groundwater Storage
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Desalination – Brackish/Seawater
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Precipitation Enhancement
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Recycled Municipal Water
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Surface Storage – CALFED or Regional/Local
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Other (Please State): _____
Improve Water Quality			
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Drinking Water Treatment and Distribution
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Groundwater/Aquifer Remediation
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Matching Quality to Use
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Pollution Prevention
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Salt and Salinity Management
<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NA	Urban Runoff Management
<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NA	Other (Please State) <u>Reduce Sediment Transplant</u>

Practice Resource Stewardship			
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Agricultural Lands Stewardship
<input type="checkbox"/> Primary	<input checked="" type="checkbox"/> Secondary	<input type="checkbox"/> NA	Economic Incentives (loans, grants, water pricing)
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Ecosystem Restoration
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Forest Management
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Land Use Planning and Management
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Recharge Areas Protection
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Water-Dependent Recreation
<input type="checkbox"/> Primary	<input checked="" type="checkbox"/> Secondary	<input type="checkbox"/> NA	Watershed Management
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Other (Please State): _____
Improve Flood Risk Management			
<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NA	Flood Risk Management
Other Strategies			
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Please State: _____

Is the proposed project an element or phase of a regional or larger program?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
If yes, please identify the program _____	

PART 6: STORM WATER MANAGEMENT BENEFITS ADDRESSED BY PROJECT *

Please indicate to what extent your project contributes to the following Storm Water Management Benefits. At a minimum, projects should address two Main Benefits listed below in accordance with the Storm Water Resources Plan Guidelines.

		Main Benefit		Additional Benefits
Water Quality				
	<input checked="" type="checkbox"/>	Increased filtration and/or treatment of runoff	<input checked="" type="checkbox"/>	Nonpoint source pollution control
			<input checked="" type="checkbox"/>	Reestablished natural water drainage and treatment
Water Supply				
	<input checked="" type="checkbox"/>	Water Supply Reliability	<input type="checkbox"/>	Water Conservation
	<input type="checkbox"/>	Conjunctive Use		
Flood Management				
	<input checked="" type="checkbox"/>	Decreased flood risk by reducing runoff rate and/or volume	<input type="checkbox"/>	Reduced sanitary sewer overflows
Environmental				
	<input type="checkbox"/>	Environmental and habitat protection and improvement including: wetland enhancement/creation; riparian enhancement/creation; increased urban green space, and/or instream flow improvement	<input checked="" type="checkbox"/>	Reduced energy use, greenhouse gas emissions, or provides a carbon sink
			<input type="checkbox"/>	Reestablishment of the natural hydrograph
			<input type="checkbox"/>	Water temperature improvements
Community				
	<input type="checkbox"/>	Employment opportunities provided	<input type="checkbox"/>	Community involvement
	<input type="checkbox"/>	Public Education	<input type="checkbox"/>	Enhance and/or create recreational and public use areas

Describe/Quantify the storm water benefits of the project. First check whether the storm water benefit is a 'primary' or 'secondary' benefit. All primary benefits MUST be quantified. See Table A below for guidance.

Storm Water Management Benefit		Quantitative Metric Unit (see Table A)	Benefit Assessment			Description/Quantity
Water Quality		<i>(indicate if a TMDL pollutant or if impairing a 303(d) listed waterbody)</i>	<input type="checkbox"/> No pollutant removal	<input checked="" type="checkbox"/> Partial removal in discharge	<input type="checkbox"/> Removal below an appropriate permit or TMDL threshold	Sediment
<input type="checkbox"/> Primary	<input checked="" type="checkbox"/> Secondary					

Storm Water Management Benefit		Quantitative Metric Unit (see Table A)	Benefit Assessment			Description/Quantity
Water Supply			<input type="checkbox"/> No infiltration or planned use	<input checked="" type="checkbox"/> Potential for infiltration and/or capture and reuse	<input type="checkbox"/> Large-scale infiltration and/or capture and reuse.	Groundwater Recharge
<input type="checkbox"/> Primary	<input checked="" type="checkbox"/> Secondary					
Flood Management			<input type="checkbox"/> No flood management benefit	<input type="checkbox"/> Alleviates minor flooding issues	<input checked="" type="checkbox"/> Alleviates major flooding issues	37 ac-ft of stormwater retention
<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary					
Environmental			<input type="checkbox"/> No environmental benefit	<input checked="" type="checkbox"/> Qualitative environmental benefit	<input type="checkbox"/> Quantitative environmental benefit	GHG Reduction
<input type="checkbox"/> Primary	<input checked="" type="checkbox"/> Secondary					
Community			<input type="checkbox"/> No community benefit	<input checked="" type="checkbox"/> Medium community benefit	<input type="checkbox"/> High community benefit	
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary					

Please indicate if your project has any of the following information:

Have the benefits of your project been modeled or quantified (yes/no): No

List the BMP(s) included in this project and indicate if modeling was completed for each BMP:

1. Detention and Infiltration Basin
2. Drainage System maintenance
3. _____

Please share the following modeled information, as applicable (additional rows may be added as needed):

Approx. BMP Footprint Area (sq feet)	
Drainage Area (sq feet)	
Imperviousness of Drainage Area (%)	
Volume of 85 th percentile-24-hour storm event (cubic ft)	
Volume of dry weather runoff (cubic ft)	
Ponding Depth (ft)	
Mulch Depth (ft)	

Planting Mix Depth (ft)	
Gravel Layer Depth (ft) and media mix (i.e., mulch, planting mix, gravel, etc.)	
Storage Volume (accounting for porosity) (cubic ft)	
Expected percentage of the 85 th percentile-24-hour storm event captured (%)	

Table A. Benefit Metrics

Benefit	Example	Metric Unit(s)
Water Quality	Increased filtration and/or treatment of runoff	Pollutant Load Reduction pounds (lbs)/day kilograms (kg)/day milligram/Liter microgram /Liter most probable number of bacteria or indicator organisms (mpn)/mL Volume Treated million gallons per day (mgd) acre-feet per year (afy)
	Nonpoint source pollution control	
	Reestablished natural water drainage and treatment	
Water Supply	Water supply reliability	Volume Captured in terms of augmentation/replacement of water supply, or reduced dependence on imported water million gallons per day (mgd) acre-feet per year (afy) Cost dollars per volume per year (of augmented water supply)
	Water conservation	
	Conjunctive use	
Flood Management	Decreased flood risk by reducing runoff rate and/or volume	Rate, Volume, and/or Size cubic feet per second (cfs) acre-feet (af) cubic feet (cf) acres or linear feet
	Reduced sanitary sewer overflows	
Environmental	Environmental and habitat protection and improvement, including: - wetland enhancement/creation; - riparian enhancement; and/or - instream flow improvement	Size and/or Rate acres cubic feet per second (cfs) carbon sequestration (megagrams of carbon per area) Other 12 area units of landscape and buffer measure of improved hydrology number of biotic structure number of physical structures reduced temperature (degrees)
	Increased urban green space	
	Reduced energy use, greenhouse gas emissions, or provides a carbon sink	
	Reestablishment of the natural hydrograph	
	Water temperature improvements	
Community	Enhanced and/or created recreational and public use areas	Size of population served number of people number of jobs acres
	Community involvement	
	Employment opportunities provided	

PART 7: PROJECT READINESS*

Item	Status (e.g., not initiated, in process, complete, N/A)	Expected Completion Date
Conceptual Plans	<u>Complete</u>	<u>3/28/2017</u> (mm/dd/yyyy)
Feasibility Study	<u>In Progress</u>	<u>8/1/2017</u> (mm/dd/yyyy)
Preliminary Design and Cost Estimates	<u>In Progress</u>	<u>10/1/2017</u> (mm/dd/yyyy)
CEQA/NEPA	<u>Not Initiated</u>	_____ (mm/dd/yyyy)
Permits	<u>Not Initiated</u>	_____ (mm/dd/yyyy)
Construction Drawings	<u>Not Initiated</u>	_____ (mm/dd/yyyy)
Funding	<u>Not Initiated</u>	_____ (mm/dd/yyyy)

For projects that do not include construction, please briefly describe the project's readiness-to proceed.

N/A

Have funding sources been identified for implementation of the project? Please provide a brief explanation.

No, the City will partner with San Bernardino County and seek grant funding to supplement local costs.

PART 8: ADDITIONAL INFORMATION

Please indicate to what extent your project addresses the following:

Is the project included in a Storm Water Resources Plan that is consistent with the Water Code requirements and Storm Water Resource Plan Guidelines?

☒ Yes ☐ No ☐ Not Sure

Is the project consistent with the applicable water quality control plan (Basin Plan)?

☒ Yes ☐ No ☐ Not Sure

Does the project create permanent, local, or regional funding? (i.e., a dedicated source of funding)

☐ Yes ☒ No ☐ Not Sure

Is the project located on lands in public ownership

☐ Yes ☐ No ☒ Not Sure

If yes, please identify the public ownership: _____

Does the project address environmental justice issues (including helping reduce inequitable distribution of environmental burdens and access to environmental goods)?

☐ Yes ☒ No ☐ Not Sure

Does the project address critical water issues (including water supply or water quality) of a disadvantaged community?

☒ Yes ☐ No ☐ Not Sure

Does the project provide specific benefits to critical water issues for Native American tribal communities?

☐ Yes ☒ No ☒ Not Sure

If yes, please identify the tribal community: _____

Is the proposed project an element or phase of a regional or larger program? ☐ Yes ☒ No

If yes, please identify the program _____

PART 9: PROJECT COST ESTIMATE

Project cost information is needed to assist in comparing benefits and costs. Additionally, knowledge of the project type and cost will assist in identifying funding sources for potential projects.

Please indicate the estimated total capital cost for project implementation. These costs include land purchase/easement, planning/design/engineering, construction/implementation, environmental compliance, administration, and contingency.

Lower estimated total capital cost (\$): 3,700,000

Upper estimated total capital cost (\$): 4,300,000

Of the total capital cost, please indicate the estimated cost for land purchase / easement (\$):
\$460,000

Annual Operation and Maintenance Cost (\$): \$8,400

Design Life of Project (years): 20

Source of Funding: City of Hesperia, San Bernardino County, and Grants

% of Funding Match: TBD

Economic Feasibility

Is the project cost-effective?		
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Not Sure
Does the project have a positive benefit-cost ratio?		
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Not Sure

Mojave Integrated Regional Water Management Plan

Project Identification – Long Form

To the extent possible this form should be electronically filled out and e-mailed BY **August 1, 2013** to comments@mywaterplan.com. Items denoted with an asterisk are required.

PART 1: LEAD IMPLEMENTING AGENCY/ORGANIZATIONAL INFORMATION

Please provide the following information regarding the project sponsor and proposed project.

Implementing Agency/ Organization / Individual: *

Town of Apple Valley, Engineering Department, Brad Miller PE, Town Engineer

Agency / Organization / Individual Address:

Town of Apple Valley, 14955 Dale Evans Parkway, Apple Valley, CA 92307

Possible Partnering Agencies:

Mojave Water Agency, San Bernardino County Flood Control District, Zone 4

Name: *

Brad Miller, PE

Title:

Town Engineer

Telephone: *

(760) 240-7000

Fax:

(760) 240-7399

Email: *

bmiller@applevalley.org

Website:

Project Name: *

Dry Well Installation Program, Town wide, Town of Apple Valley

Either the latitude/longitude or a location description is required. To determine the latitude/longitude, use the closest address or intersection. If the project is linear, use the furthest upstream latitude/longitude.

Project Latitude:

Project Longitude:

Location Description:	The Town of Apple Valley proposes to construct a series of dry well structures along natural flood water pathways, town wide, in the areas hardest hit by surface runoff flooding. These dry wells will make use of natural low-lying areas that serve as basins, and will provide a significant step toward alleviating future flooding. The Project will utilize these natural low lying areas as opportunities to capture storm water runoff, reduce flooding, and promote and maximize groundwater recharge. All of the proposed dry wells will be publicly owned and perpetually maintained by the Town of Apple Valley. All structures will be built within existing Town rights-of-way; no property acquisition is required.
------------------------------	---

Project Cooperating Agency(ies)/Organization(s)/Individual(s):

• Mojave Water Agency, Scott Weldy
• San Bernardino County Flood Control, Kevin Blakeslee
•
•

Project Status (e.g., new, ongoing, expansion, new phase):

New Phase of ongoing Dry Well Installation Program
--

Project Type (e.g., Conceptual, Design, Feasibility Study, Implementable Project, Implementable Program):

Implementation of Program, New Phase of ongoing Program

PART 2: PROJECT NEED*

It is important to understand the need(s) or issue(s) that the proposed project will address and the benefits that it will provide. Information provided in this section defines the need(s) or issue(s) that the proposed project will address and will help to catalog existing need(s) or issue(s) in the Mojave IRWM Region.

Please provide a 1-2 paragraph description of the need(s) or problem(s) that the project will address. As applicable, discuss the water supply need, operational efficiency need, water quality need, or resource stewardship need (e.g. ecosystem restoration, floodplain management) need. Discuss critical impacts that will occur if the proposal is not implemented.

<p><u>Describe the Project Need:</u></p> <p>The Town of Apple Valley experiences two types of storm damage. The first is erosion along natural well defined, and relatively steep, flow paths that convey concentrated flows of storm water runoff. This type of flood condition involves quickly moving storm flows, and is present over about one third of the Town's area, primarily areas with good drainage that are tributary to the Mojave River.</p> <p>The second type of storm damage is the most common, and it involves standing or slowly moving flood water. This condition occurs in extremely flat or very gently sloped areas throughout the remaining two</p>
--

thirds of Apple Valley. This condition is particularly common in areas surrounding the Apple Valley Dry Lake, which is a natural basin with no outfall. These relatively flat land areas extend for miles radiating out from the Apple Valley Dry Lake Basin. In the vast tributary area that surrounds the Apple Valley Dry Lake, water ponds in local low spots, filling and over-topping one, only to sheet flow on to the next one, working it's way to the lowest point in the Apple Valley Dry Lake Basin. Water ponds in street right-of-way, adjacent yards, and on private property, impeding travel, damaging public infrastructure, and even threatening homes.

Flood damage caused by standing or slowly moving storm water runoff occurs in virtually every area of Town tributary to the Dry Lake, and is the result of several unique High Desert features. Typically, desert rainfall events consist of heavy cloudbursts of rain activity, with relatively short storm duration, but with high intensity, and impacts that are confined to a relatively small area. These events cause the occasional desert "Flash Flood" condition that has, over time, shaped the natural topography of the California High Desert. These severe rain events combine with the mineral makeup of the soil in our region to create a unique desert flooding scenario. The mineral makeup of the High Desert soil is commonly called "Caliché Soil", and is a natural form of cement. Most of the ingredients used for modern concrete/cement are mined from hillside quarries here in the High Desert. The natural alluvial materials that make up the greater Apple Valley Dry Lake basin are rich in this Caliché Soil, and it forms a crust liner of dense and impervious material on the surface of the Basin. This crust prevents storm water runoff from infiltrating quickly in many areas, and results in standing water that may remain for weeks or months after a rainfall event. Standing water is trapped in natural low spots and cannot percolate into the ground. It remains until it has evaporated. Storm water flows that actually reach the Apple Valley Dry Lake are almost completely lost to evaporation as the surface crust of impervious soil may extend to a depth of over 75 feet in the lowest portions of the basin. For most areas of Apple Valley the impervious surface soils extend only to a depth of about 35-40 feet, and the underlying sand and gravel material has excellent percolation potential.

The multiple rain events of 2010-2011 distributed intense, long duration rainfall episodes uniformly over the entire region. These storms resulted in flooding through hundreds of Apple Valley homes, (see photos attached). Parks and public roads were inundated. Sewer pipes located in the Mojave River carrying effluent to the regional water treatment facility were damaged resulting in massive sewage spills into the river. Damage to public infrastructure resulted in claims to FEMA for more than \$700,000 from one storm alone. This unusual rainfall event provided unique insights into the local floodwater pathway alignments, and the depth of flooding that is possible to occur in some low-lying areas. With this knowledge comes opportunity. In respect to flood damage, dry wells are currently the most effective and economical means for improving public safety, protecting public infrastructure, and protecting improved private property, as well as capturing and infiltrating storm runoff for the purpose of groundwater recharge. The proposed project will capture and infiltrate flood waters by perforating the surface layers of impervious soil, and allow natural gravity flow infiltration to percolate storm water into the underground aquifer.

The project will enhance storm water infiltration while at the same time, mitigate existing flood hazards.

PART 3: PROJECT DESCRIPTION*

A general description of the proposed project is needed. This section will provide information associated with the project concept, general project information, and readiness to proceed. It is recognized that much of the requested information may not be available for projects that are at a conceptual level of project development. We appreciate and need your ideas.

Please provide a 1-2 paragraph description of the project including the general project concept, what will be constructed/implemented, how the constructed project will function, and treatment methods, as appropriate.

If awarded funding, the project would move directly forward with preparation of bid packages to advertise and award a contract for the next phase of program implementation. The contract will construct as many dry well structures as funding will allow.

To date approximately 77 shallow dry well structures have been constructed in Apple Valley and are successfully alleviating flooding where they exist. The underlying layers of natural gravel and sand absorb water almost as fast as it can be filtered and introduced into the wells. The Town of Apple Valley Dry Well Standard Design calls for a pre-manufactured dry well structure, and is a combination of an inlet treatment/filtration chamber, (similar to many being used in coastal areas for NPDES related storm water runoff treatment prior to discharge into a water body), combined with a second chamber connected to a shallow lined and perforated well or pit that extends down through the surface layer of impervious soils. The structures average between 35 and 40 feet deep, but are only as deep as required to reach sandy gravelly soil.

If applicable, list surface water bodies and groundwater basins associated with the proposed project:

• The Apple Valley Dry Lake
• All underground basins recharged from areas tributary to the Apple Valley Dry Lake.
•
•

Please identify up to three available documents which contain information specific to the proposed project and associated benefits (this information helps determine the technical justification and feasibility):

• Apple Valley Town Council Agenda Report on Town-wide flooding, 2010-2011.
• Apple Valley Award of Contract for recent Drywell construction project.
• Apple Valley Standard Dry Well Design and Specifications

How do you rate the technical feasibility of the proposed project?

<input checked="" type="checkbox"/> High	The technical feasibility is well-documented and is based on similar successful
--	---

	projects and/or the project uses common and widely accepted technology/practices and/or the project includes or is based on pilot studies or similar results.
<input type="checkbox"/> Medium	The project does not use common or widely accepted technology/practices, but substantial documentation is available on proposed benefits and project success.
<input type="checkbox"/> Low	The project has not been done before and technical feasibility is not adequately documented.

PART 4: IRWM PLAN OBJECTIVES ADDRESSED BY PROJECT *

Describe how the project meets any of the following Mojave IRWM Plan Objectives:

Mojave IRWM Plan Objective	Contribution			Description
1. Balance average annual future water demands with available future supplies to ensure sustainability throughout the Region between now and the 2035 planning horizon and beyond.	<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NA	Project will enhance groundwater recharge through storm water capture and infiltration, improving sustainability.
3. Maintain stability in previously overdrafted groundwater basins and reduce overdraft in groundwater basins experiencing ongoing water table declines.	<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NA	Project will improve stability of the Apple Valley Underground Aquifer by enhancing storm water capture and infiltration.
7. Provide support and assistance to Disadvantaged Communities and help facilitate projects and programs that benefit those communities.	<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	
8. Protect and restore sensitive environmental areas in coordination with land use and conservation plans to support stewardship and awareness of environmental resources.	<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	
9. Improve stormwater management throughout the Plan area.	<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NA	Project will reduce flooding while improving storm water capture and infiltration.
2. Continue improving regional water use efficiency by implementing a portfolio of conservation actions that are regionally cost-effective.	<input type="checkbox"/> Primary	<input checked="" type="checkbox"/> Secondary	<input type="checkbox"/> NA	
10. Preserve local beneficial uses as it relates to water quality of water supplied by each source, including groundwater, stormwater, surface water, imported water, and recycled water.	<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NA	
11. Obtain financial assistance from outside sources to help implement this Plan across a range of project sizes during the planning horizon.	<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NA	

Mojave IRWM Plan Objective	Contribution			Description
13. Identify and establish reliable funding sources to maintain, modernize and improve water infrastructure to ensure a high quality, resilient and reliable water supply.	<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	
14. Increase the use of recycled water in the Region while maintaining compliance with the Mojave Basin Area Judgment.	<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	
4. Address the State policy goal of reducing reliance on the Delta by meeting water demands with alternative sources of supply during times when State Water Project (SWP) supplies are reduced or unavailable due to droughts, outages, environmental and regulatory restrictions, or other reasons.	<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NA	
5. Optimize the use of the Region's water related assets to maximize available supplies to meet projected demands while mitigating against risks. Water related assets to be optimized include financial resources, groundwater storage programs, available imported water supplies, transfer and exchange opportunities, available physical infrastructure, and management policies.	<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NA	
12. Improve public awareness of water supply, conservation, water quality, and environmental stewardship challenges and opportunities throughout the planning horizon.	<input type="checkbox"/> Primary	<input checked="" type="checkbox"/> Secondary	<input type="checkbox"/> NA	
6. Prevent land subsidence throughout the Region.	<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	

PART 5: RESOURCE MANAGEMENT STRATEGIES*

**Please indicate California Water Plan strategies addressed by the proposed project.
(Check all that apply)**

Reduce Water Demands			
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Agricultural Water Use Efficiency
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Urban Water Use Efficiency
Improve Operational Efficiency and Transfers			
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Conveyance – Delta, Regional/Local
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	System Reoperation
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Water Transfers
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Other (Please State): _____
Increase Water Supply			
<input type="checkbox"/> Primary	<input checked="" type="checkbox"/> Secondary	<input type="checkbox"/> NA	Conjunctive Management and Groundwater Storage
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Desalination – Brackish/Seawater
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Precipitation Enhancement
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Recycled Municipal Water
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Surface Storage – CALFED or Regional/Local
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NA	Other (Please State): _____
Improve Water Quality			
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Drinking Water Treatment and Distribution
<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NA	Groundwater/Aquifer Remediation
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Matching Quality to Use
<input type="checkbox"/> Primary	<input checked="" type="checkbox"/> Secondary	<input type="checkbox"/> NA	Pollution Prevention
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Salt and Salinity Management
<input type="checkbox"/> Primary	<input checked="" type="checkbox"/> Secondary	<input type="checkbox"/> NA	Urban Runoff Management
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NA	Other (Please State) _____

Practice Resource Stewardship			
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Agricultural Lands Stewardship
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Economic Incentives (loans, grants, water pricing)
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Ecosystem Restoration
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Forest Management
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Land Use Planning and Management
<input type="checkbox"/> Primary	<input checked="" type="checkbox"/> Secondary	<input type="checkbox"/> NA	Recharge Areas Protection
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Water-Dependent Recreation
<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NA	Watershed Management
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NA	Other (Please State): _____
Improve Flood Risk Management			
<input checked="" type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NA	Flood Risk Management
Other Strategies			
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NA	Please State: _____

Is the proposed project an element or phase of a regional or larger program?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
If yes, please identify the program	<u>This will be a new Phase of an existing Town wide program to install dry wells in flood prone areas.</u>

PART 6: PROJECT READINESS*

Item	Status (e.g., not initiated, in process, complete, N/A)	Expected Completion Date
Conceptual Plans	<u>Completed</u>	_____ (mm/dd/yyyy)
Feasibility Study	<u>Completed</u>	_____ (mm/dd/yyyy)
Preliminary Design and Cost Estimates	<u>Completed</u>	_____ (mm/dd/yyyy)
CEQA/NEPA	<u>Completed</u>	_____ (mm/dd/yyyy)
Permits	_____	_____ (mm/dd/yyyy)
Construction Drawings	<u>Completed</u>	_____ (mm/dd/yyyy)
Funding	<u>Initiated</u>	_____ (mm/dd/yyyy)

For projects that do not include construction, please briefly describe the project's readiness-to proceed.

Have funding sources been identified for implementation of the project? Please provide a brief explanation.

Funding for this ongoing program has historically come from Town Developer Impact Fees, (Drainage Impact Fee component). This application is to request additional grant funding to supplement the current Town funding and expand the program.

PART 7: PROJECT BENEFITS*

Please provide a 1-2 paragraph description of the benefit(s) that the project will address. Information provided will be used in the assessment of project benefits. Quantify benefits to the extent possible (e.g., project will result in x acre-feet of water savings, project will benefit x acres of habitat)

The proposed Dry Well Installation Program has multiple goals and benefits.

Local flooding episodes will be less severe and of shorter duration as the dry wells can quickly de-water low-lying areas of trapped water. Damage to Public Infrastructure, including street improvements, sewer improvements, and water and public utility systems will be reduced. Public improvements of every type will be better protected from damage by reducing or eliminating extended periods of submersion. In addition, hundreds of private homes and improved properties will benefit from a greatly reduced incidence of local flooding. The proposed Dry Well Project will also protect groundwater quality by taking surface flows off of local streets more quickly, reducing contact time in urban areas so that storm water runoff picks up less petroleum-based contaminants. The Dry Well Program structures are designed to treat storm water prior to infiltration by subjecting storm flows to multiple filtration features. Each dry well structure separates solids, floating debris, and oil and grease from storm water prior to entering the percolation well.

In addition to the flood hazard mitigation, the proposed project allows trapped storm water to penetrate the natural layer of impervious surface soil covering the greater Apple Valley Dry Lake Basin, and enhance more efficient infiltration of storm water into the underlying layers of gravel and sand. Properly placed dry wells will maximize surface water recharge of the underground aquifer by allowing storm water to more easily reach the upper-most sand and gravel layers of surface soils where it may then percolate naturally by gravity into the underground aquifer. The Dry Well Project will greatly reduce and minimize historic surface water losses due to evaporation.

Does the project address environmental justice issues (including helping reduce inequitable distribution of environmental burdens and access to environmental goods)?

☒ **Yes** ☐ **No** ☐ **Not Sure**

Does the project address critical water issues (including water supply or water quality) of a disadvantaged community?

☒ **Yes** ☐ **No** ☐ **Not Sure**

Does the project provide specific benefits to critical water issues for Native American tribal communities?

☐ **Yes** ☐ **No** ☒ **Not Sure**

If yes, please identify the tribal community: _____

Please indicate to what extent your project contributes to Climate Change Response Actions.

Adaptation to Climate Change	
<input checked="" type="checkbox"/>	Increases Water Supply Reliability
<input checked="" type="checkbox"/>	Advances/ Expands Conjunctive Management of Multiple Water Supply Sources
<input type="checkbox"/>	Increases Water Use and/or Reuse Efficiency
<input checked="" type="checkbox"/>	Provides Additional Water Supply
<input checked="" type="checkbox"/>	Promotes Water Quality Protection
<input type="checkbox"/>	Reduces Water Demand
<input type="checkbox"/>	Advances/Expands Water Recycling
<input checked="" type="checkbox"/>	Promotes Urban Runoff Reuse
<input type="checkbox"/>	Addresses Sea Level Rise
<input checked="" type="checkbox"/>	Addresses other Anticipated Climate Change Impact (e.g. through water management system modifications) Please State: Program enhances use of alternate water source, will help reduce impacts of climate change on traditional water resources.
<input checked="" type="checkbox"/>	Improves Flood Control (e.g. through wetlands restoration, management, protection)
<input checked="" type="checkbox"/>	Promotes Habitat Protection
	<input type="checkbox"/> Establishes Migration Corridors
	<input type="checkbox"/> Re-establishes River-Floodplain Hydrologic Continuity
	<input type="checkbox"/> Re-introduces Anadromous Fish Populations to Upper Watersheds
	<input type="checkbox"/> Enhances and Protects Upper Watershed Forests and Meadow Systems
	<input checked="" type="checkbox"/> Other (Please State):Program reduces historic losses of water from the local habitat as the result of evaporation. Program will enhance capture and preservation of water resources in the local aquifer.
<input type="checkbox"/>	Other (Please State):_____
Reduces Greenhouse Gas Emissions and/or Energy Consumption	
<input checked="" type="checkbox"/>	Promotes Energy-Efficient Water Demand Reduction or Increases Water Use Efficiency
<input checked="" type="checkbox"/>	Improves Water System Energy Efficiency
<input checked="" type="checkbox"/>	Advances/Expands Water Recycling
<input checked="" type="checkbox"/>	Promotes Urban Runoff Reuse that Leads to Reduced Energy Demand
<input type="checkbox"/>	Promotes Use of Renewable Energy Sources
<input type="checkbox"/>	Contributes to Carbon Sequestration (e.g. through vegetation growth)
<input type="checkbox"/>	Other (Please State):

PART 8: PROJECT COST ESTIMATE

Project cost information is needed to assist in comparing benefits and costs. Additionally, knowledge of the project type and cost will assist in identifying funding sources for potential projects.

Please indicate the estimated total capital cost for project implementation. These costs include land purchase/easement, planning/design/engineering, construction/implementation, environmental compliance, administration, and contingency.

Lower estimated total capital cost (\$): 1 million

Upper estimated total capital cost (\$): 1 million

Of the total capital cost, please indicate the estimated cost for land purchase / easement (\$): 0

Annual Operation and Maintenance Cost (\$): \$200 per unit

Design Life of Project (years): 50

Economic Feasibility

Is the project cost-effective?		
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Not Sure
Does the project have a positive benefit-cost ratio?		
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Not Sure

Mojave Integrated Regional Water Management Plan

Project Identification - Short Form

Note: This two page project identification short form gathers the minimum amount of information required to submit a project for consideration in the IRWM Plan. More information may be required at a later date. This form should be submitted via email or mail BY **August 1, 2013** to comments@mywaterplan.com.

General Information (Required)				
Project Name:	Antelope Valley Wash Recharge Ponds			
Project Sponsor:	City of Hesperia			
If Joint Project, Other Partners:	San Bernardino County Flood Control District			
Project Website (if available):	N/A			
Project Contact Person:	Phone	FAX	Email	
John Leveillee, City Engineer	760-947-1451	760-244-2515	jleveillee@cityofhesperia.us	
Project Description				
Project Type (e.g. Conceptual, Design, Feasibility Study, Implementable Project, Implementable Program)				
Conceptual Design				
Project Description (1-2 sentences):				
The Ponds would provide groundwater recharge upgradient from Hesperia Water District wells. The Hesperia Master Plan of Drainage identifies a 65 acre site for a storm water detention basin in the Antelope Valley Wash south of the newly constructed Ranchero Road. In addition to storm water detention, the site would be able to accomodate groundwater recharge.				
Project Integration (Describe how the project does or could integrate with other projects in the Region):				
The recharge Project would integrate with the storm water detention facility as mentioned above.				
Project Source (Cite Plan(s) to which the project belongs [e.g., Watershed Master Plans, Capital Improvement Plans]):				
Regional Water Management Plan, Supply Enhancement Project, Non-Floodplain Aquifer Recharge. Capital Improvement Plan.				
Project Location				
Descriptive (Description of property location etc.):				
Property is currently undeveloped within the Antelope Valley Wash. San Bernardino County Flood Control will begin acquisition of the property for their project in early 2014.				
Latitude/Longitude - info available at:		http://geocoder.us/	Lat: -117.305	Long: 34.381
Estimated Capital Costs: (Note estimated cost, if known OR check rough estimate):				
Estimated Cost:	\$ 1,700,000.00	<\$100K <input type="checkbox"/>	\$100K - \$1M <input type="checkbox"/>	\$1M - \$10M <input checked="" type="checkbox"/>
Project Status (Check all that apply):	Conceptual <input checked="" type="checkbox"/>	In-Design <input type="checkbox"/>	Ready to Implement <input type="checkbox"/>	CEQA Complete <input type="checkbox"/>
				N/A <input type="checkbox"/>
Estimated Year of Completion:	TBD			

Project Benefits			
Water Demand: <i>Water Savings/Demand Reduction (AFY)</i> (Check one)	<input type="checkbox"/>	1-100 AF	<input type="checkbox"/> 100-1000AF <input type="checkbox"/> 1000+ AF
Water Supply: <i>New Supply Created (AFY)</i> (Check one)	<input type="checkbox"/>	1-100 AF	<input type="checkbox"/> 100-1000AF <input type="checkbox"/> 1000+ AF
Recycled Water: <i>New RW Supply created (AFY)</i> (Check one)	<input type="checkbox"/>	1-100 AF	<input type="checkbox"/> 100-1000AF <input type="checkbox"/> 1000+ AF
Groundwater: <i>Reduction in overdraft/increase in recharge (AFY)</i> (Check one)	<input type="checkbox"/>	1-100 AF	<input type="checkbox"/> 100-1000AF <input checked="" type="checkbox"/> 1000+ AF
DACs Involvement	Y/N:		No
Public Access, Open Space, Habitat, Recreation (<i>acres created/restored</i>):			
Stormwater: <i>Reduction in Flood Damage (Y/N):</i>	Yes	Multi-benefit Y/N: Yes	
Multi-stakeholder project/regional collaboration	Y/N:		Yes
Climate Change: <i>Helps assess potential impacts (Y/N):</i>			No
Environmental Stewardship/Public Awareness	Direct Benefits:		
Other: (<i>Describe X amount of benefit</i>)			
Project Criteria			
Please review the project against the IRWM Plan Objectives, Statewide Priorities, Program Preferences, and California Water Plan Resource Management Strategies and place a check in the box if the project meets the criteria.			
IRWM Plan Objectives Met			
Prim.	Second.		
<input type="checkbox"/>	<input type="checkbox"/>	1. Balance average annual future water demands with available future supplies to ensure sustainability throughout the Region between now and the 2035 planning horizon and beyond.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3. Maintain stability in previously overdrafted groundwater basins and reduce overdraft in groundwater basins experiencing ongoing water table declines.	
<input type="checkbox"/>	<input type="checkbox"/>	7. Provide support and assistance to Disadvantaged Communities and help facilitate projects and programs that benefit those communities.	
<input type="checkbox"/>	<input type="checkbox"/>	8. Protect and restore sensitive environmental areas in coordination with land use and conservation plans to support stewardship and awareness of environmental resources.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	9. Improve stormwater management throughout the Plan area.	
<input type="checkbox"/>	<input type="checkbox"/>	2. Continue improving regional water use efficiency by implementing a portfolio of conservation actions that are regionally cost-effective.	
<input type="checkbox"/>	<input type="checkbox"/>	10. Preserve local beneficial uses as it relates to water quality of water supplied by each source, including groundwater, stormwater, surface water, imported water, and recycled water.	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	11. Obtain financial assistance from outside sources to help implement this Plan across a range of project sizes during the planning horizon.	
<input type="checkbox"/>	<input type="checkbox"/>	13. Identify and establish reliable funding sources to maintain, modernize and improve water infrastructure to ensure a high quality, resilient and reliable water supply.	
<input type="checkbox"/>	<input type="checkbox"/>	14. Increase the use of recycled water in the Region while maintaining compliance with the Mojave Basin Area Judgment.	
<input type="checkbox"/>	<input type="checkbox"/>	4. Address the State policy goal of reducing reliance on the Delta by meeting water demands with alternative sources of supply during times when State Water Project (SWP) supplies are reduced or unavailable due to droughts, outages, environmental and regulatory restrictions, or other reasons.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	5. Optimize the use of the Region's water related assets to maximize available supplies to meet projected demands while mitigating against risks. Water related assets to be optimized include financial resources, groundwater storage programs, available imported water supplies, transfer and exchange opportunities, available physical infrastructure, and management policies.	
<input type="checkbox"/>	<input type="checkbox"/>	12. Improve public awareness of water supply, conservation, water quality, and environmental stewardship challenges and opportunities throughout the planning horizon.	
<input type="checkbox"/>	<input type="checkbox"/>	6. Prevent land subsidence throughout the Region.	

Statewide Priorities	
<input type="checkbox"/>	Drought Preparedness
<input type="checkbox"/>	Use and Reuse Water More Efficiently
<input type="checkbox"/>	Climate Change Response Actions (Adaptation to Climate Change, Reduction of Greenhouse Gas Emissions, Reduce Energy Consumption)
<input type="checkbox"/>	Expand Environmental Stewardship
<input checked="" type="checkbox"/>	Practice Integrated Flood Management
<input checked="" type="checkbox"/>	Protect Surface and Groundwater Quality
<input type="checkbox"/>	Improve Tribal Water and Natural Resources
<input type="checkbox"/>	Ensure Equitable Distribution of Benefits
Program Preferences	
<input checked="" type="checkbox"/>	Include Regional Projects or Programs
<input type="checkbox"/>	Effectively Integrate Water Management Programs and Projects within a Hydrologic Region Identified in the CA Water Plan; the RWQCB Region or Subdivision; or Other Region or Sub-Region Specifically Identified by DWR
<input type="checkbox"/>	Effectively Resolve Significant Water-Related Conflicts within or between Regions
<input type="checkbox"/>	Contribute to Attainment of One or More of the Objectives of the CALFED Bay-Delta Program
<input type="checkbox"/>	Address Critical Water Supply or Water Quality Needs of Disadvantaged Communities within the Region
<input type="checkbox"/>	Effectively Integrate Water Management with Land Use Planning
CA Water Plan - Resource Management Strategies	
<input type="checkbox"/>	Agricultural Lands Stewardship
<input type="checkbox"/>	Agricultural Water Use Efficiency
<input checked="" type="checkbox"/>	Conjunctive Management and Groundwater Storage
<input type="checkbox"/>	Conveyance - Delta, Regional/Local
<input type="checkbox"/>	Desalination - Brackish & Seawater
<input type="checkbox"/>	Drinking Water Treatment and Distribution
<input type="checkbox"/>	Economic Incentives
<input type="checkbox"/>	Ecosystem Restoration
<input checked="" type="checkbox"/>	Flood Risk Management
<input type="checkbox"/>	Forest Management
<input type="checkbox"/>	Groundwater/Aquifer Remediation
<input type="checkbox"/>	Land Use Planning & Management
<input type="checkbox"/>	Matching Water Quality to Water Use
<input type="checkbox"/>	Pollution Prevention
<input type="checkbox"/>	Precipitation Enhancement
<input checked="" type="checkbox"/>	Recharge Areas Protection
<input type="checkbox"/>	Recycled Municipal Water
<input type="checkbox"/>	Salt & Salinity Management
<input type="checkbox"/>	Surface Storage - CALFED
<input type="checkbox"/>	Surface Storage - Regional/Local
<input type="checkbox"/>	System Reoperation
<input type="checkbox"/>	Urban Runoff Management
<input type="checkbox"/>	Urban Water Use Efficiency
<input type="checkbox"/>	Water Transfers
<input type="checkbox"/>	Water-Dependent Recreation
<input checked="" type="checkbox"/>	Watershed Management

Mojave Integrated Regional Water Management Plan

Project Identification - Short Form

Note: This two page project identification short form gathers the minimum amount of information required to submit a project for consideration in the IRWM Plan. More information may be required at a later date. This form should be submitted via email or mail BY **August 1, 2013** to comments@mywaterplan.com.

General Information (Required)				
Project Name:	Forks Dam Storm Water Detention			
Project Sponsor:	Tony Winkel (MWA)			
If Joint Project, Other Partners:				
Project Website (if available):				
Project Contact Person:	Phone	FAX	Email	
Tony Winkel	760-946-7000	760-240-2642	twinkel@mojavewater.org	
Project Description				
Project Type (e.g. Conceptual, Design, Feasibility Study, Implementable Project, Implementable Program)				
Conceptual				
Project Description (1-2 sentences):				
Although extremely variable on average 41,000 acre feet of storm water flow out of Afton Canyon every 6 years. Based on current Sta				
Project Integration (Describe how the project does or could integrate with other projects in the Region):				
This project would integrate with area recharge projects and the State of California would support the project. The Recycled Water Po				
Project Source (Cite Plan(s) to which the project belongs [e.g., Watershed Master Plans, Capital Improvement Plans]):				
Project Location				
Descriptive (Description of property location etc.):				
Forks Dam and Mojave River Corridor				
Latitude/Longitude - info available at: http://geocoder.us/				
Lat:		Long:		
Estimated Capital Costs: (Note estimated cost, if known OR check rough estimate):				
Estimated Cost:	<input type="checkbox"/> <\$100K	<input type="checkbox"/> \$100K - \$1M	<input checked="" type="checkbox"/> \$1M - \$10M	<input checked="" type="checkbox"/> >\$10M
Project Status (Check all that apply):	<input checked="" type="checkbox"/> Conceptual	<input type="checkbox"/> In-Design	<input type="checkbox"/> Ready to Implement	<input type="checkbox"/> CEQA Complete <input type="checkbox"/> N/A
Estimated Year of Completion:				
Unknown - would depend on permits				

Project Benefits			
Water Demand: <i>Water Savings/Demand Reduction (AFY)</i> (Check one)	<input checked="" type="checkbox"/>	1-100 AF	<input type="checkbox"/> 100-1000AF <input type="checkbox"/> 1000+ AF
Water Supply: <i>New Supply Created (AFY)</i> (Check one)	<input checked="" type="checkbox"/>	1-100 AF	<input type="checkbox"/> 100-1000AF <input type="checkbox"/> 1000+ AF
Recycled Water: <i>New RW Supply created (AFY)</i> (Check one)	<input type="checkbox"/>	1-100 AF	<input type="checkbox"/> 100-1000AF <input type="checkbox"/> 1000+ AF
Groundwater: <i>Reduction in overdraft/increase in recharge (AFY)</i> (Check one)	<input checked="" type="checkbox"/>	1-100 AF	<input type="checkbox"/> 100-1000AF <input type="checkbox"/> 1000+ AF
DACs Involvement	Y/N:		
Public Access, Open Space, Habitat, Recreation (<i>acres created/restored</i>):	Additional aquifer recharge would lead to the		
Stormwater: <i>Reduction in Flood Damage (Y/N):</i>	Yes	Multi-benefit Y/N: Yes	
Multi-stakeholder project/regional collaboration	Y/N:		Yes
Climate Change: <i>Helps assess potential impacts (Y/N):</i>			
Environmental Stewardship/Public Awareness	Direct Benefits:		
Other: (<i>Describe X amount of benefit</i>)	<ul style="list-style-type: none"> • Locally sourced "free" water • Revenue source for MWA • Conservation of lost storm water 		
Project Criteria			
Please review the project against the IRWM Plan Objectives, Statewide Priorities, Program Preferences, and California Water Plan Resource Management Strategies and place a check in the box if the project meets the criteria.			
IRWM Plan Objectives Met			
Prim.	Second.		
<input checked="" type="checkbox"/>	<input type="checkbox"/>	1. Balance average annual future water demands with available future supplies to ensure sustainability throughout the Region between now and the 2035 planning horizon and beyond.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3. Maintain stability in previously overdrafted groundwater basins and reduce overdraft in groundwater basins experiencing ongoing water table declines.	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	7. Provide support and assistance to Disadvantaged Communities and help facilitate projects and programs that benefit those communities.	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	8. Protect and restore sensitive environmental areas in coordination with land use and conservation plans to support stewardship and awareness of environmental resources.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	9. Improve stormwater management throughout the Plan area.	
<input type="checkbox"/>	<input type="checkbox"/>	2. Continue improving regional water use efficiency by implementing a portfolio of conservation actions that are regionally cost-effective.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	10. Preserve local beneficial uses as it relates to water quality of water supplied by each source, including groundwater, stormwater, surface water, imported water, and recycled water.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	11. Obtain financial assistance from outside sources to help implement this Plan across a range of project sizes during the planning horizon.	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	13. Identify and establish reliable funding sources to maintain, modernize and improve water infrastructure to ensure a high quality, resilient and reliable water supply.	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	14. Increase the use of recycled water in the Region while maintaining compliance with the Mojave Basin Area Judgment.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	4. Address the State policy goal of reducing reliance on the Delta by meeting water demands with alternative sources of supply during times when State Water Project (SWP) supplies are reduced or unavailable due to droughts, outages, environmental and regulatory restrictions, or other reasons.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	5. Optimize the use of the Region's water related assets to maximize available supplies to meet projected demands while mitigating against risks. Water related assets to be optimized include financial resources, groundwater storage programs, available imported water supplies, transfer and exchange opportunities, available physical infrastructure, and management policies.	
<input type="checkbox"/>	<input type="checkbox"/>	12. Improve public awareness of water supply, conservation, water quality, and environmental stewardship challenges and opportunities throughout the planning horizon.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	6. Prevent land subsidence throughout the Region.	

Statewide Priorities			
<input checked="" type="checkbox"/>	Drought Preparedness		
<input type="checkbox"/>	Use and Reuse Water More Efficiently		
<input type="checkbox"/>	Climate Change Response Actions (Adaptation to Climate Change, Reduction of Greenhouse Gas Emissions, Reduce Energy Consumption)		
<input type="checkbox"/>	Expand Environmental Stewardship		
<input checked="" type="checkbox"/>	Practice Integrated Flood Management		
<input checked="" type="checkbox"/>	Protect Surface and Groundwater Quality		
<input checked="" type="checkbox"/>	Improve Tribal Water and Natural Resources		
<input type="checkbox"/>	Ensure Equitable Distribution of Benefits		
Program Preferences			
<input checked="" type="checkbox"/>	Include Regional Projects or Programs		
<input type="checkbox"/>	Effectively Integrate Water Management Programs and Projects within a Hydrologic Region Identified in the CA Water Plan; the RWQCB Region or Subdivision; or Other Region or Sub-Region Specifically Identified by DWR		
<input type="checkbox"/>	Effectively Resolve Significant Water-Related Conflicts within or between Regions		
<input type="checkbox"/>	Contribute to Attainment of One or More of the Objectives of the CALFED Bay-Delta Program		
<input checked="" type="checkbox"/>	Address Critical Water Supply or Water Quality Needs of Disadvantaged Communities within the Region		
<input checked="" type="checkbox"/>	Effectively Integrate Water Management with Land Use Planning		
CA Water Plan - Resource Management Strategies			
<input type="checkbox"/>	Agricultural Lands Stewardship	<input type="checkbox"/>	Pollution Prevention
<input type="checkbox"/>	Agricultural Water Use Efficiency	<input type="checkbox"/>	Precipitation Enhancement
<input checked="" type="checkbox"/>	Conjunctive Management and Groundwater Storage	<input checked="" type="checkbox"/>	Recharge Areas Protection
<input type="checkbox"/>	Conveyance - Delta, Regional/Local	<input type="checkbox"/>	Recycled Municipal Water
<input type="checkbox"/>	Desalination - Brackish & Seawater	<input type="checkbox"/>	Salt & Salinity Management
<input type="checkbox"/>	Drinking Water Treatment and Distribution	<input type="checkbox"/>	Surface Storage - CALFED
<input checked="" type="checkbox"/>	Economic Incentives	<input type="checkbox"/>	Surface Storage - Regional/Local
<input checked="" type="checkbox"/>	Ecosystem Restoration	<input type="checkbox"/>	System Reoperation
<input checked="" type="checkbox"/>	Flood Risk Management	<input checked="" type="checkbox"/>	Urban Runoff Management
<input type="checkbox"/>	Forest Management	<input type="checkbox"/>	Urban Water Use Efficiency
<input checked="" type="checkbox"/>	Groundwater/Aquifer Remediation	<input type="checkbox"/>	Water Transfers
<input type="checkbox"/>	Land Use Planning & Management	<input type="checkbox"/>	Water-Dependent Recreation
<input type="checkbox"/>	Matching Water Quality to Water Use	<input checked="" type="checkbox"/>	Watershed Management

Mojave Integrated Regional Water Management Plan

Project Identification - Short Form

Note: This two page project identification short form gathers the minimum amount of information required to submit a project for consideration in the IRWM Plan. More information may be required at a later date. This form should be submitted via email or mail BY **August 1, 2013** to comments@mywaterplan.com.

General Information (Required)				
Project Name:				
Project Sponsor:				
If Joint Project, Other Partners:				
Project Website (if available):				
Project Contact Person:	Phone	FAX	Email	
Project Description				
Project Type (e.g. Conceptual, Design, Feasibility Study, Implementable Project, Implementable Program)				
Project Description (1 -2 sentences):				
Project Integration (Describe how the project does or could integrate with other projects in the Region):				
Project Source (Cite Plan(s) to which the project belongs [e.g., Watershed Master Plans, Capital Improvement Plans]):				
Project Location				
Descriptive (Description of property location etc.):				
Latitude/Longitude - info available at: http://geocoder.us/		Lat:		Long:
Estimated Capital Costs: (Note estimated cost, if known OR check rough estimate):				
Estimated Cost:	<\$100K	\$100K - \$1M	\$1M - \$10M	>\$10M
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Project Status (Check all that apply):	Conceptual	In-Design	Ready to Implement	CEQA Complete N/A
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
Estimated Year of Completion:				

Project Benefits			
Water Demand: <i>Water Savings/Demand Reduction (AFY)</i> (Check one)	<input type="checkbox"/>	1-100 AF	<input type="checkbox"/> 100-1000AF <input type="checkbox"/> 1000+ AF
Water Supply: <i>New Supply Created (AFY)</i> (Check one)	<input type="checkbox"/>	1-100 AF	<input type="checkbox"/> 100-1000AF <input type="checkbox"/> 1000+ AF
Recycled Water: <i>New RW Supply created (AFY)</i> (Check one)	<input type="checkbox"/>	1-100 AF	<input type="checkbox"/> 100-1000AF <input type="checkbox"/> 1000+ AF
Groundwater: <i>Reduction in overdraft/increase in recharge (AFY)</i> (Check one)	<input type="checkbox"/>	1-100 AF	<input type="checkbox"/> 100-1000AF <input type="checkbox"/> 1000+ AF
DACs Involvement	Y/N:		
Public Access, Open Space, Habitat, Recreation (<i>acres created/restored</i>):			
Stormwater: <i>Reduction in Flood Damage (Y/N):</i>		Multi-benefit Y/N:	
Multi-stakeholder project/regional collaboration	Y/N:		
Climate Change: <i>Helps assess potential impacts (Y/N):</i>			
Environmental Stewardship/Public Awareness	Direct Benefits:		
Other: (<i>Describe X amount of benefit</i>)			
Project Criteria			
Please review the project against the IRWM Plan Objectives, Statewide Priorities, Program Preferences, and California Water Plan Resource Management Strategies and place a check in the box if the project meets the criteria.			
IRWM Plan Objectives Met			
Prim.	Second.		
<input type="checkbox"/>	<input type="checkbox"/>	1. Balance average annual future water demands with available future supplies to ensure sustainability throughout the Region between now and the 2035 planning horizon and beyond.	
<input type="checkbox"/>	<input type="checkbox"/>	3. Maintain stability in previously overdrafted groundwater basins and reduce overdraft in groundwater basins experiencing ongoing water table declines.	
<input type="checkbox"/>	<input type="checkbox"/>	7. Provide support and assistance to Disadvantaged Communities and help facilitate projects and programs that benefit those communities.	
<input type="checkbox"/>	<input type="checkbox"/>	8. Protect and restore sensitive environmental areas in coordination with land use and conservation plans to support stewardship and awareness of environmental resources.	
<input type="checkbox"/>	<input type="checkbox"/>	9. Improve stormwater management throughout the Plan area.	
<input type="checkbox"/>	<input type="checkbox"/>	2. Continue improving regional water use efficiency by implementing a portfolio of conservation actions that are regionally cost-effective.	
<input type="checkbox"/>	<input type="checkbox"/>	10. Preserve local beneficial uses as it relates to water quality of water supplied by each source, including groundwater, stormwater, surface water, imported water, and recycled water.	
<input type="checkbox"/>	<input type="checkbox"/>	11. Obtain financial assistance from outside sources to help implement this Plan across a range of project sizes during the planning horizon.	
<input type="checkbox"/>	<input type="checkbox"/>	13. Identify and establish reliable funding sources to maintain, modernize and improve water infrastructure to ensure a high quality, resilient and reliable water supply.	
<input type="checkbox"/>	<input type="checkbox"/>	14. Increase the use of recycled water in the Region while maintaining compliance with the Mojave Basin Area Judgment.	
<input type="checkbox"/>	<input type="checkbox"/>	4. Address the State policy goal of reducing reliance on the Delta by meeting water demands with alternative sources of supply during times when State Water Project (SWP) supplies are reduced or unavailable due to droughts, outages, environmental and regulatory restrictions, or other reasons.	
<input type="checkbox"/>	<input type="checkbox"/>	5. Optimize the use of the Region's water related assets to maximize available supplies to meet projected demands while mitigating against risks. Water related assets to be optimized include financial resources, groundwater storage programs, available imported water supplies, transfer and exchange opportunities, available physical infrastructure, and management policies.	
<input type="checkbox"/>	<input type="checkbox"/>	12. Improve public awareness of water supply, conservation, water quality, and environmental stewardship challenges and opportunities throughout the planning horizon.	
<input type="checkbox"/>	<input type="checkbox"/>	6. Prevent land subsidence throughout the Region.	

Statewide Priorities	
<input type="checkbox"/>	Drought Preparedness
<input type="checkbox"/>	Use and Reuse Water More Efficiently
<input type="checkbox"/>	Climate Change Response Actions (Adaptation to Climate Change, Reduction of Greenhouse Gas Emissions, Reduce Energy Consumption)
<input type="checkbox"/>	Expand Environmental Stewardship
<input type="checkbox"/>	Practice Integrated Flood Management
<input type="checkbox"/>	Protect Surface and Groundwater Quality
<input type="checkbox"/>	Improve Tribal Water and Natural Resources
<input type="checkbox"/>	Ensure Equitable Distribution of Benefits
Program Preferences	
<input type="checkbox"/>	Include Regional Projects or Programs
<input type="checkbox"/>	Effectively Integrate Water Management Programs and Projects within a Hydrologic Region Identified in the CA Water Plan; the RWQCB Region or Subdivision; or Other Region or Sub-Region Specifically Identified by DWR
<input type="checkbox"/>	Effectively Resolve Significant Water-Related Conflicts within or between Regions
<input type="checkbox"/>	Contribute to Attainment of One or More of the Objectives of the CALFED Bay-Delta Program
<input type="checkbox"/>	Address Critical Water Supply or Water Quality Needs of Disadvantaged Communities within the Region
<input type="checkbox"/>	Effectively Integrate Water Management with Land Use Planning
CA Water Plan - Resource Management Strategies	
<input type="checkbox"/>	Agricultural Lands Stewardship
<input type="checkbox"/>	Agricultural Water Use Efficiency
<input type="checkbox"/>	Conjunctive Management and Groundwater Storage
<input type="checkbox"/>	Conveyance - Delta, Regional/Local
<input type="checkbox"/>	Desalination - Brackish & Seawater
<input type="checkbox"/>	Drinking Water Treatment and Distribution
<input type="checkbox"/>	Economic Incentives
<input type="checkbox"/>	Ecosystem Restoration
<input type="checkbox"/>	Flood Risk Management
<input type="checkbox"/>	Forest Management
<input type="checkbox"/>	Groundwater/Aquifer Remediation
<input type="checkbox"/>	Land Use Planning & Management
<input type="checkbox"/>	Matching Water Quality to Water Use
<input type="checkbox"/>	Pollution Prevention
<input type="checkbox"/>	Precipitation Enhancement
<input type="checkbox"/>	Recharge Areas Protection
<input type="checkbox"/>	Recycled Municipal Water
<input type="checkbox"/>	Salt & Salinity Management
<input type="checkbox"/>	Surface Storage - CALFED
<input type="checkbox"/>	Surface Storage - Regional/Local
<input type="checkbox"/>	System Reoperation
<input type="checkbox"/>	Urban Runoff Management
<input type="checkbox"/>	Urban Water Use Efficiency
<input type="checkbox"/>	Water Transfers
<input type="checkbox"/>	Water-Dependent Recreation
<input type="checkbox"/>	Watershed Management

Mojave Integrated Regional Water Management Plan

Project Identification – Long Form

To the extent possible this form should be electronically filled out and e-mailed BY **August 1, 2013** to comments@mywaterplan.com. Items denoted with an asterisk are required.

PART 1: LEAD IMPLEMENTING AGENCY/ORGANIZATIONAL INFORMATION

Please provide the following information regarding the project sponsor and proposed project.

Implementing Agency/ Organization / Individual: *

Mojave Desert Resource Conservation District (MDRCD) – applicant

Agency / Organization / Individual Address:

15415 Sand St. St. 103 Victorville, CA 92392

Possible Partnering Agencies:

S. B. County Flood Control/Calif. Dept. of Fish and Wildlife/etc.

Name: *

Chuck Bell

Title:

Pres.

Telephone: *

760 964 3118

Fax:

Email: *

chuckb@sisp.net

Website:

Project Name: *

Oro Grande Region Flood Control – Riparian Protection

Either the latitude/longitude or a location description is required. To determine the latitude/longitude, use the closest address or intersection. If the project is linear, use the furthest upstream latitude/longitude.

Project Latitude:

Project Longitude:

Location Description:	Segment of the Mojave River from the vicinity of VVWRA through Oro Grande to Helendale region.
------------------------------	--

Project Cooperating Agency(ies)/Organization(s)/Individual(s):

• S. B. County Flood Control
• Calif. Dept. of Fish and Wildlife
• State Dept. of Fish and Wildlife
• “Cooperating” is a key element – likely hard to get

Project Status (e.g., new, ongoing, expansion, new phase):

Expansion/New phase

Project Type (e.g., Conceptual, Design, Feasibility Study, Implementable Project, Implementable Program):

Design/Implementable

PART 2: PROJECT NEED*

It is important to understand the need(s) or issue(s) that the proposed project will address and the benefits that it will provide. Information provided in this section defines the need(s) or issue(s) that the proposed project will address and will help to catalog existing need(s) or issue(s) in the Mojave IRWM Region.

Please provide a 1-2 paragraph description of the need(s) or problem(s) that the project will address. As applicable, discuss the water supply need, operational efficiency need, water quality need, or resource stewardship need (e.g. ecosystem restoration, floodplain management) need. Discuss critical impacts that will occur if the proposal is not implemented.

Prior to the mid 1980's – County FC maintained a channel through the Oro Grande stretch of the Mojave River on a fairly regular schedule. Since said work ceased – even with tamarisk/arundo etc. eradicated/controlled – native riparian vegetation has clogged the river from bank to bank – due to surface and shallow groundwater. The historic river flow was primarily on the west bank as evidenced by its vertical cut. The 2005 and 2010 floods flowed more toward and over the east bank – flooding homes (taking one out) – farms – roads – eroding properties into the river bed - with the 2010 flood flows almost reaching the railroad bed. Current FEMA flood maps have included much of Oro Grande area in a flood plain. Lawsuits against the County are in process. The County cites its difficulties getting permits from state and federal FWS for said channel work – along with budget constraints.

When major floods occur – they can scour out significant stands of riparian vegetation that would be more protected with a defined channel to carry the majority of the flows.

In addition – normal storm flows pool behind said clogged vegetation – which acts as a dam – percolating into Alto instead of further downstream toward Centro and Baja when a channel was in place – an issue possibly affecting the Judgment.

Although un-gated – the Mojave Forks Dam might be attenuating flows – allowing them to pond and meander under certain conditions – vs. pre-dam surges that likely gouged out their own channel(s).

This stretch is often so clogged that it is difficult to even walk through – bank to bank. Said condition is contrary to DFW’s “Mojave River Mgt. Plan” (for the adjudication) which calls for a “free flowing river”.

This is a floodplain management/flood control/health and safety/riparian benefit issue.

PART 3: PROJECT DESCRIPTION*

A general description of the proposed project is needed. This section will provide information associated with the project concept, general project information, and readiness to proceed. It is recognized that much of the requested information may not be available for projects that are at a conceptual level of project development. We appreciate and need your ideas.

Please provide a 1-2 paragraph description of the project including the general project concept, what will be constructed/implemented, how the constructed project will function, and treatment methods, as appropriate.

Provide matching funding for a channel(s) **design** (one was preliminarily performed by County FC – document on file at MWA) – and **re-instate** a channel(s) through said area to carry storm flows. County’s design was for a 100 year storm – at exorbitant expense – however a channel designed for lesser (more normal) storm flows could suffice to provide the benefits described above – and during a major storm – could at least be a “path” that flows could take – enlarging it along the way – with less damage to riparian vegetation and its eco-systems – and less meandering to the east bank of the river – reduced flooding of improved parcels.

If applicable, list surface water bodies and groundwater basins associated with the proposed project:

• Mojave River surface and groundwater
•
•
•

Please identify up to three available documents which contain information specific to the proposed project and associated benefits (this information helps determine the technical justification and feasibility):

• County FC analysis – document on file at MWA
• Numerous letters/e-mails/etc. re: this issue – initiated by the MDRCD and affected residents.
• Photos/accounts/etc. of the 2005 and 2010 floods

How do you rate the technical feasibility of the proposed project?

<input checked="" type="checkbox"/> High	The technical feasibility is well-documented and is based on similar successful projects and/or the project uses common and widely accepted technology/practices and/or the project includes or is based on pilot studies or similar results.
<input type="checkbox"/> Medium	The project does not use common or widely accepted technology/practices, but substantial documentation is available on proposed benefits and project success.
<input type="checkbox"/> Low	The project has not been done before and technical feasibility is not adequately documented.

PART 4: IRWM PLAN OBJECTIVES ADDRESSED BY PROJECT *

Describe how the project meets any of the following Mojave IRWM Plan Objectives:

Mojave IRWM Plan Objective	Contribution			Description
1. Balance average annual future water demands with available future supplies to ensure sustainability throughout the Region between now and the 2035 planning horizon and beyond.	<input type="checkbox"/> Primary	X <input type="checkbox"/> Secondary	<input type="checkbox"/> NA	Provides for more surface and subsurface flows downstream toward Centro and Baja
3. Maintain stability in previously overdrafted groundwater basins and reduce overdraft in groundwater basins experiencing ongoing water table declines.	<input type="checkbox"/> Primary	X <input type="checkbox"/> Secondary	<input type="checkbox"/> NA	See #1 above
7. Provide support and assistance to Disadvantaged Communities and help facilitate projects and programs that benefit those communities.	<input type="checkbox"/> Primary	X <input type="checkbox"/> Secondary	<input type="checkbox"/> NA	Oro Grande region is a DAC
8. Protect and restore sensitive environmental areas in coordination with land use and conservation plans to support stewardship and awareness of environmental resources.	<input type="checkbox"/> Primary	X <input type="checkbox"/> Secondary	<input type="checkbox"/> NA	Channelization – a “free flowing river” – would benefit and protect riparian woodlands.
9. Improve stormwater management throughout the Plan area.	X <input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NA	There is no “stormwater mgt.” in this segment of the river.
2. Continue improving regional water use efficiency by implementing a portfolio of conservation actions that are regionally cost-effective.	<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	X? <input type="checkbox"/> NA	
10. Preserve local beneficial uses as it relates to water quality of water supplied by each source, including groundwater, stormwater, surface water, imported water, and recycled water.	<input type="checkbox"/> Primary	X <input type="checkbox"/> Secondary	<input type="checkbox"/> NA	More downstream “flushing” – a benefit? - or results in quicker spread of Chrom.6 and nitrate plumes?
11. Obtain financial assistance from outside sources to help implement this Plan across a range of project sizes during the planning horizon.	X <input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NA	

Mojave IRWM Plan Objective	Contribution			Description
13. Identify and establish reliable funding sources to maintain, modernize and improve water infrastructure to ensure a high quality, resilient and reliable water supply.	<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	X? <input type="checkbox"/> NA	
14. Increase the use of recycled water in the Region while maintaining compliance with the Mojave Basin Area Judgment.	<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	X <input type="checkbox"/> NA	
4. Address the State policy goal of reducing reliance on the Delta by meeting water demands with alternative sources of supply during times when State Water Project (SWP) supplies are reduced or unavailable due to droughts, outages, environmental and regulatory restrictions, or other reasons.	<input type="checkbox"/> Primary	X <input type="checkbox"/> Secondary	<input type="checkbox"/> NA	More natural flow downstream – less need for piped State Water?
5. Optimize the use of the Region’s water related assets to maximize available supplies to meet projected demands while mitigating against risks. Water related assets to be optimized include financial resources, groundwater storage programs, available imported water supplies, transfer and exchange opportunities, available physical infrastructure, and management policies.	<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	X <input type="checkbox"/> NA	
12. Improve public awareness of water supply, conservation, water quality, and environmental stewardship challenges and opportunities throughout the planning horizon.	<input type="checkbox"/> Primary	X <input type="checkbox"/> Secondary	<input type="checkbox"/> NA	
6. Prevent land subsidence throughout the Region.	<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	X <input type="checkbox"/> NA	

PART 5: RESOURCE MANAGEMENT STRATEGIES*

**Please indicate California Water Plan strategies addressed by the proposed project.
(Check all that apply)**

Reduce Water Demands			
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Agricultural Water Use Efficiency
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Urban Water Use Efficiency
Improve Operational Efficiency and Transfers			
<input type="checkbox"/> Primary	<input checked="" type="checkbox"/> Secondary	<input type="checkbox"/> NA	Conveyance – Delta, Regional/Local – less ponding upstream – more flow downstream?
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	System Reoperation – NA unless “reoperation” includes re-instating FC work?
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Water Transfers
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NA	Other (Please State): _____
Increase Water Supply			
<input type="checkbox"/> Primary	<input checked="" type="checkbox"/> Secondary	<input type="checkbox"/> NA	Conjunctive Management and Groundwater Storage – more flow/more storage downstream?
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Desalination – Brackish/Seawater
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Precipitation Enhancement
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Recycled Municipal Water
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Surface Storage – CALFED or Regional/Local
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NA	Other (Please State): _____
Improve Water Quality			
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Drinking Water Treatment and Distribution
<input type="checkbox"/> Primary	<input checked="" type="checkbox"/> Secondary	<input type="checkbox"/> NA	Groundwater/Aquifer Remediation – due to a more “free flowing” river.
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Matching Quality to Use
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Pollution Prevention
<input type="checkbox"/> Primary	<input checked="" type="checkbox"/> Secondary	<input type="checkbox"/> NA	Salt and Salinity Management – more high quality water flowing into lower basins diluting higher TDS?
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input checked="" type="checkbox"/> NA	Urban Runoff Management – NOTE: This needs addressing – for volumes/surges/quality of runoff - affecting the Mojave River. A significant contribution to the 2010

	flood flows came from lateral washes in the Victorville/Oro Grande region.
<input type="checkbox"/> Primary <input type="checkbox"/> Secondary <input type="checkbox"/> NA	Other (Please State) _____

Practice Resource Stewardship	
X <input type="checkbox"/> Primary <input type="checkbox"/> Secondary <input type="checkbox"/> NA	Agricultural Lands Stewardship – protects ag. land from flooding/eroding into the river bed.
<input type="checkbox"/> Primary <input type="checkbox"/> Secondary ?X <input type="checkbox"/> NA	Economic Incentives (loans, grants, water pricing)
<input type="checkbox"/> Primary X <input type="checkbox"/> Secondary <input type="checkbox"/> NA	Ecosystem Restoration – protects riparian from significant scouring during major storms
<input type="checkbox"/> Primary <input type="checkbox"/> Secondary X <input type="checkbox"/> NA	Forest Management – unless we can call that choked riparian a “forest” – which it primarily is.
<input type="checkbox"/> Primary X <input type="checkbox"/> Secondary <input type="checkbox"/> NA	Land Use Planning and Management
<input type="checkbox"/> Primary <input type="checkbox"/> Secondary X? <input type="checkbox"/> NA	Recharge Areas Protection
<input type="checkbox"/> Primary <input type="checkbox"/> Secondary X <input type="checkbox"/> NA	Water-Dependent Recreation
X <input type="checkbox"/> Primary <input type="checkbox"/> Secondary <input type="checkbox"/> NA	Watershed Management –at least watershed mgt. within the Mojave River bed?
<input type="checkbox"/> Primary <input type="checkbox"/> Secondary <input type="checkbox"/> NA	Other (Please State): _____
Improve Flood Risk Management	
X <input type="checkbox"/> Primary <input type="checkbox"/> Secondary <input type="checkbox"/> NA	Flood Risk Management – major impact in Oro Grande area – more susceptible to even minor flooding – inability to obtain flood insurance – loss of property values – etc.
Other Strategies	
<input type="checkbox"/> Primary <input type="checkbox"/> Secondary <input type="checkbox"/> NA	Please State: _____

Is the proposed project an element or phase of a regional or larger program?	X <input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, please identify the program _____ Complements County’s on-going flood control work upstream and downstream of the Oro Grande stretch – likely reducing the need for downstream FC work	

PART 6: PROJECT READINESS*

Item	Status (e.g., not initiated, in process, complete, N/A)	Expected Completion Date
Conceptual Plans	One done by County FC – on file at MWA	_____ (mm/dd/yyyy)
Feasibility Study	As above	_____ (mm/dd/yyyy)
Preliminary Design and Cost Estimates	As above- extreme cost due to 100 yr. flood design	_____ (mm/dd/yyyy)
CEQA/NEPA	EIR should not be required to just “resume” prior work – but probably will be unless mitigation/compensation can be agreed to. Best argument is that said channelization will protect “riparian” from major scouring – a “self mitigating project”. Plus obvious human/property health and safety benefits.	____ ?? (mm/dd/yyyy)
Permits	Likely Fed and State FWS’. USACE, etc. - unclear	____ ?? (mm/dd/yyyy)
Construction Drawings	Above	_____ (mm/dd/yyyy)
Funding	Not available per County FC	____ ?? (mm/dd/yyyy)

For projects that do not include construction, please briefly describe the project’s readiness-to proceed.

County FC’s analysis includes major stabilization/revetments/etc. on the river’s eastern bank. However – assuming funding – and the ability to construct a channel for less than 100 yr. storms – agreement on “mitigation” - available bulldozers could start work now.

Have funding sources been identified for implementation of the project? Please provide a brief explanation.

Per County FC: Flood Zone 4(?) does not generate sufficient funding to re-create a channel – but possibly it could fund periodic maintenance?

PART 7: PROJECT BENEFITS*

Please provide a 1-2 paragraph description of the benefit(s) that the project will address. Information provided will be used in the assessment of project benefits. Quantify benefits to the extent possible (e.g., project will result in x acre-feet of water savings, project will benefit x acres of habitat)

Benefits addressed above. Enormous costs associated with flooding – reduced property values now that it is a FEMA-designated flood plain – erosion of parcels/ag. land – no access to flood insurance – health/safety/etc.

Note: As soon as BNSF sees the next flood waters approaching its mainline (nearly 100 trains on some days) – it will create its own levy on the river side of its tracks – no questions asked about “permits”, etc.

Benefits to riparian “forest” – less lost to scouring with a defined channel in place.

Does the project address environmental justice issues (including helping reduce inequitable distribution of environmental burdens and access to environmental goods)?

X ☐ Yes ☐ No ☐ Not Sure

Does the project address critical water issues (including water supply or water quality) of a disadvantaged community?

X ☐ Yes ☐ No ☐ Not Sure

Does the project provide specific benefits to critical water issues for Native American tribal communities?

☐ Yes ☐ No X ☐ Not Sure

If yes, please identify the tribal community: _____

Please indicate to what extent your project contributes to Climate Change Response Actions.

Adaptation to Climate Change	
<input type="checkbox"/>	Increases Water Supply Reliability
<input type="checkbox"/>	Advances/ Expands Conjunctive Management of Multiple Water Supply Sources
<input type="checkbox"/>	Increases Water Use and/or Reuse Efficiency
X <input type="checkbox"/>	Provides Additional Water Supply – possibly to downstream basins
<input type="checkbox"/>	Promotes Water Quality Protection
<input type="checkbox"/>	Reduces Water Demand
<input type="checkbox"/>	Advances/Expands Water Recycling
<input type="checkbox"/>	Promotes Urban Runoff Reuse
<input type="checkbox"/>	Addresses Sea Level Rise
<input type="checkbox"/>	Addresses other Anticipated Climate Change Impact (e.g. through water management system modifications) Please State:
X <input type="checkbox"/>	Improves Flood Control (e.g. through wetlands restoration, management, protection)
<input type="checkbox"/>	Promotes Habitat Protection
	<input type="checkbox"/> Establishes Migration Corridors
	XXX <input type="checkbox"/> Re-establishes River-Floodplain Hydrologic Continuity
	<input type="checkbox"/> Re-introduces Anadromous Fish Populations to Upper Watersheds
	<input type="checkbox"/> Enhances and Protects Upper Watershed Forests and Meadow Systems
	<input type="checkbox"/> Other (Please State):
<input type="checkbox"/>	Other (Please State):_____
Reduces Greenhouse Gas Emissions and/or Energy Consumption	
<input type="checkbox"/>	Promotes Energy-Efficient Water Demand Reduction or Increases Water Use Efficiency
<input type="checkbox"/>	Improves Water System Energy Efficiency
<input type="checkbox"/>	Advances/Expands Water Recycling
<input type="checkbox"/>	Promotes Urban Runoff Reuse that Leads to Reduced Energy Demand
<input type="checkbox"/>	Promotes Use of Renewable Energy Sources
<input type="checkbox"/>	Contributes to Carbon Sequestration (e.g. through vegetation growth)
<input type="checkbox"/>	Other (Please State):

PART 8: PROJECT COST ESTIMATE

Project cost information is needed to assist in comparing benefits and costs. Additionally, knowledge of the project type and cost will assist in identifying funding sources for potential projects.

Please indicate the estimated total capital cost for project implementation. These costs include land purchase/easement, planning/design/engineering, construction/implementation, environmental compliance, administration, and contingency.

Lower estimated total capital cost (\$): Depends if channel(s) can be re-created to handle less than 100 yr. storms?

Upper estimated total capital cost (\$): _____ See County FC's analysis/report which is based on work required to accommodate a 100 yr. storm _____

Of the total capital cost, please indicate the estimated cost for land purchase / easement (\$): Will be significant if County is forced to buy-out flood-prone properties as part of a legal settlement – or per one of the alternatives included in its analysis/report. _____

Annual Operation and Maintenance Cost (\$): Channel(s) maintenance costs would have to be determined by County FC. _____

Design Life of Project (years): On-going if approved.

Economic Feasibility

Is the project cost-effective?		
X** <input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Not Sure
Does the project have a positive benefit-cost ratio?		
X** <input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Not Sure

**Depends on total costs. If the County chooses to “buy-out” properties – and thus does not perform flood control in this stretch of the river – the next flood could even be worse – with the County having to buy-out more and more properties – especially with the precedent being set.

Mojave Integrated Regional Water Management Plan

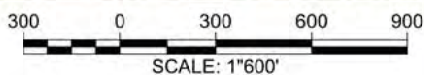
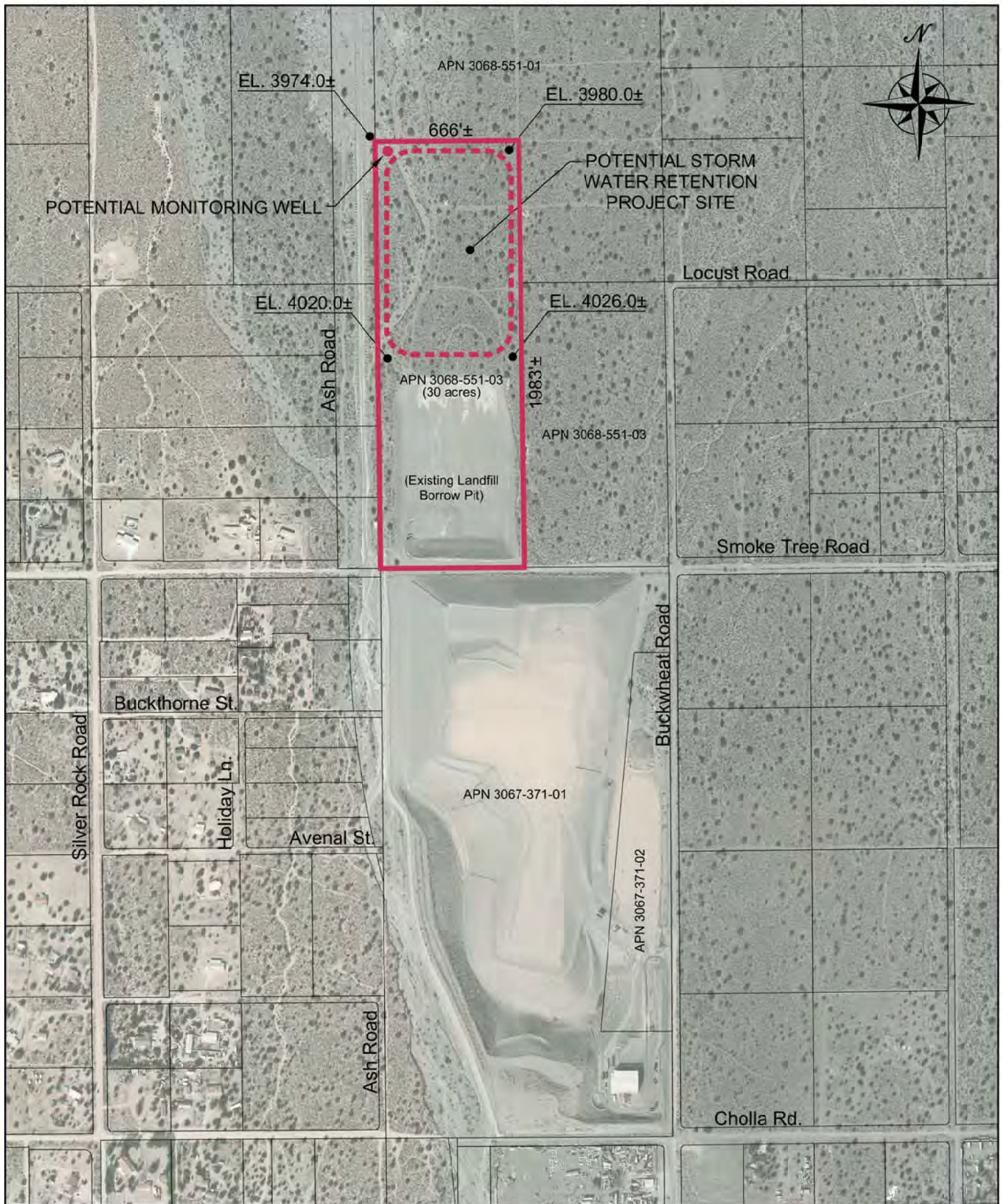
Project Identification - Short Form

Note: This two page project identification short form gathers the minimum amount of information required to submit a project for consideration in the IRWM Plan. More information may be required at a later date. This form should be submitted via email or mail BY **August 1, 2013** to comments@mywaterplan.com.

General Information (Required)				
Project Name: <u>SHEEP CREEK WASH STORM WATER RETENTION</u>				
Project Sponsor: <u>PHILAN PINON HILLS COMMUNITY SERVICES DISTRICT</u>				
If Joint Project, Other Partners: <u>POTENTIALLY SAN BERNARDINO FLOOD CONTROL</u>				
Project Website (if available):				
Project Contact Person:	Phone	FAX	Email	
<u>Don Bartz</u>	<u>7608681212</u>	<u>7608682323</u>	<u>DBARTZ@PPHCSO.ORG</u>	
Project Description				
Project Type (e.g. Conceptual, Design, Feasibility Study, Implementable Project, Implementable Program)				
<u>CONCEPTUAL</u>				
Project Description (1-2 sentences):				
<u>STORM WATER CAPTURE</u>				
Project Integration (Describe how the project does or could integrate with other projects in the Region):				
<u>POTENTIAL JOINT VENTURE W/ SAN BERNARDINO COUNTY FLOOD CONTROL</u>				
Project Source (Cite Plan(s) to which the project belongs [e.g., Watershed Master Plans, Capital Improvement Plans]):				
Project Location				
Descriptive (Description of property location etc.):				
<u>VACANT LAND W/ CREOSOTE VEGETATION & JOSHUA TREES / EXISTING BORROW PIT</u>				
Latitude/Longitude - info available at: http://geocoder.us/		Lat:	Long:	
		<u>N 34° 26.70'</u>	<u>W 117° 36.70'</u>	
Estimated Capital Costs: (Note estimated cost, if known OR check rough estimate):				
Estimated Cost:	<\$100K	\$100K - \$1M	\$1M - \$10M	>\$10M
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Project Status (Check all that apply):	Conceptual	In-Design	Ready to Implement	CEQA Complete N/A
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
Estimated Year of Completion: <u>2020</u>				

Project Benefits			
Water Demand: <i>Water Savings/Demand Reduction (AFY)</i> (Check one)	<input type="checkbox"/>	1-100 AF	<input type="checkbox"/> 100-1000AF <input type="checkbox"/> 1000+ AF
Water Supply: <i>New Supply Created (AFY)</i> (Check one)	<input type="checkbox"/>	1-100 AF	<input type="checkbox"/> 100-1000AF <input type="checkbox"/> 1000+ AF
Recycled Water: <i>New RW Supply created (AFY)</i> (Check one)	<input type="checkbox"/>	1-100 AF	<input checked="" type="checkbox"/> 100-1000AF <input type="checkbox"/> 1000+ AF
Groundwater: <i>Reduction in overdraft/increase in recharge (AFY)</i> (Check one)	<input type="checkbox"/>	1-100 AF	<input checked="" type="checkbox"/> 100-1000AF <input type="checkbox"/> 1000+ AF
DACs Involvement Y/N:			
Public Access, Open Space, Habitat, Recreation (<i>acres created/restored</i>):			
Stormwater:	<i>Reduction in Flood Damage (Y/N):</i> YES		Multi-benefit Y/N: YES
Multi-stakeholder project/regional collaboration Y/N:			
Climate Change: <i>Helps assess potential impacts (Y/N):</i>			
Environmental Stewardship/Public Awareness <i>Direct Benefits:</i>			
Other: (<i>Describe X amount of benefit</i>)			
Project Criteria			
Please review the project against the IRWM Plan Objectives, Statewide Priorities, Program Preferences, and California Water Plan Resource Management Strategies and place a check in the box if the project meets the criteria.			
IRWM Plan Objectives Met			
Prim.	Second.		
<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Balance average annual future water demands with available future supplies to ensure sustainability throughout the Region between now and the 2035 planning horizon and beyond.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3. Maintain stability in previously overdrafted groundwater basins and reduce overdraft in groundwater basins experiencing ongoing water table declines.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7. Provide support and assistance to Disadvantaged Communities and help facilitate projects and programs that benefit those communities.	
<input type="checkbox"/>	<input type="checkbox"/>	8. Protect and restore sensitive environmental areas in coordination with land use and conservation plans to support stewardship and awareness of environmental resources.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	9. Improve stormwater management throughout the Plan area.	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2. Continue improving regional water use efficiency by implementing a portfolio of conservation actions that are regionally cost-effective.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	10. Preserve local beneficial uses as it relates to water quality of water supplied by each source, including groundwater, stormwater, surface water, imported water, and recycled water.	
<input type="checkbox"/>	<input type="checkbox"/>	11. Obtain financial assistance from outside sources to help implement this Plan across a range of project sizes during the planning horizon.	
<input type="checkbox"/>	<input type="checkbox"/>	13. Identify and establish reliable funding sources to maintain, modernize and improve water infrastructure to ensure a high quality, resilient and reliable water supply.	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	14. Increase the use of recycled water in the Region while maintaining compliance with the Mojave Basin Area Judgment.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	4. Address the State policy goal of reducing reliance on the Delta by meeting water demands with alternative sources of supply during times when State Water Project (SWP) supplies are reduced or unavailable due to droughts, outages, environmental and regulatory restrictions, or other reasons.	
<input type="checkbox"/>	<input type="checkbox"/>	5. Optimize the use of the Region's water related assets to maximize available supplies to meet projected demands while mitigating against risks. Water related assets to be optimized include financial resources, groundwater storage programs, available imported water supplies, transfer and exchange opportunities, available physical infrastructure, and management policies.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	12. Improve public awareness of water supply, conservation, water quality, and environmental stewardship challenges and opportunities throughout the planning horizon.	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	6. Prevent land subsidence throughout the Region.	

Statewide Priorities			
<input checked="" type="checkbox"/>	Drought Preparedness		
<input checked="" type="checkbox"/>	Use and Reuse Water More Efficiently		
<input checked="" type="checkbox"/>	Climate Change Response Actions (Adaptation to Climate Change, Reduction of Greenhouse Gas Emissions, Reduce Energy Consumption)		
<input type="checkbox"/>	Expand Environmental Stewardship		
<input checked="" type="checkbox"/>	Practice Integrated Flood Management		
<input checked="" type="checkbox"/>	Protect Surface and Groundwater Quality		
<input type="checkbox"/>	Improve Tribal Water and Natural Resources		
<input type="checkbox"/>	Ensure Equitable Distribution of Benefits		
Program Preferences			
<input type="checkbox"/>	Include Regional Projects or Programs		
<input type="checkbox"/>	Effectively Integrate Water Management Programs and Projects within a Hydrologic Region Identified in the CA Water Plan; the RWQCB Region or Subdivision; or Other Region or Sub-Region Specifically Identified by DWR		
<input type="checkbox"/>	Effectively Resolve Significant Water-Related Conflicts within or between Regions		
<input type="checkbox"/>	Contribute to Attainment of One or More of the Objectives of the CALFED Bay-Delta Program		
<input checked="" type="checkbox"/>	Address Critical Water Supply or Water Quality Needs of Disadvantaged Communities within the Region		
<input type="checkbox"/>	Effectively Integrate Water Management with Land Use Planning		
CA Water Plan - Resource Management Strategies			
<input type="checkbox"/>	Agricultural Lands Stewardship	<input checked="" type="checkbox"/>	Pollution Prevention
<input type="checkbox"/>	Agricultural Water Use Efficiency	<input checked="" type="checkbox"/>	Precipitation Enhancement
<input checked="" type="checkbox"/>	Conjunctive Management and Groundwater Storage	<input checked="" type="checkbox"/>	Recharge Areas Protection
<input type="checkbox"/>	Conveyance - Delta, Regional/Local	<input type="checkbox"/>	Recycled Municipal Water
<input type="checkbox"/>	Desalination - Brackish & Seawater	<input type="checkbox"/>	Salt & Salinity Management
<input type="checkbox"/>	Drinking Water Treatment and Distribution	<input type="checkbox"/>	Surface Storage - CALFED
<input type="checkbox"/>	Economic Incentives	<input type="checkbox"/>	Surface Storage - Regional/Local
<input checked="" type="checkbox"/>	Ecosystem Restoration	<input type="checkbox"/>	System Reoperation
<input checked="" type="checkbox"/>	Flood Risk Management	<input type="checkbox"/>	Urban Runoff Management
<input type="checkbox"/>	Forest Management	<input type="checkbox"/>	Urban Water Use Efficiency
<input checked="" type="checkbox"/>	Groundwater/Aquifer Remediation	<input type="checkbox"/>	Water Transfers
<input type="checkbox"/>	Land Use Planning & Management	<input type="checkbox"/>	Water-Dependent Recreation
<input type="checkbox"/>	Matching Water Quality to Water Use	<input checked="" type="checkbox"/>	Watershed Management



Phelan Piñon Hills Community Services District
Sheep Creek Wash
Potential Storm Water Retention Basin

Mojave Integrated Regional Water Management Plan

Project Identification - Short Form

Note: This two page project identification short form gathers the minimum amount of information required to submit a project for consideration in the IRWM Plan. More information may be required at a later date. This form should be submitted via email or mail BY **August 1, 2013** to comments@mywaterplan.com.

General Information (Required)				
Project Name:	Silver Lakes Association Stormwater Debris - retention basin, Buckthorn Wash at Mountain Springs Road			
Project Sponsor:	Silver Lakes Association			
If Joint Project, Other Partners:	Helendale Community Services District			
Project Website (if available):				
Project Contact Person:	Phone	FAX	Email	
Michael Bennett - GM	760-245-1606		mbennett@silverlakesassociation.com	
Project Description				
Project Type (e.g. Conceptual, Design, Feasibility Study, Implementable Project, Implementable Program)				
Conceptual				
Project Description (1-2 sentences):				
Design and construction of a reinforced concrete storm water debris interceptor where Buckthorn Wash bisects the Silver Lakes Golf Course. Approx size(LWD): 60'x 10'x 6'				
Project Integration (Describe how the project does or could integrate with other projects in the Region):				
This debris interceptor would reduce damage to Golf Course and reduce sediment and debris flowing into a proposed off river retention-percolation basin at Helendale Rd.				
Project Source (Cite Plan(s) to which the project belongs [e.g., Watershed Master Plans, Capital Improvement Plans]):				
Project Location				
Descriptive (Description of property location etc.):				
100' east of Mountain Springs Road overpass at Buckthorn Wash, Helendale, CA				
Latitude/Longitude - info available at: http://geocoder.us/		Lat: 34, 45', 16.06" N	Long: 117, 20' 48.79" W	
Estimated Capital Costs: (Note estimated cost, if known OR check rough estimate):				
Estimated Cost:	<\$100K <input checked="" type="checkbox"/>	\$100K - \$1M <input type="checkbox"/>	\$1M - \$10M <input type="checkbox"/>	>\$10M <input type="checkbox"/>
Project Status (Check all that apply):	Conceptual <input checked="" type="checkbox"/>	In-Design <input type="checkbox"/>	Ready to Implement <input type="checkbox"/>	CEQA Complete <input type="checkbox"/> N/A <input type="checkbox"/>
Estimated Year of Completion:				

Project Benefits			
Water Demand: <i>Water Savings/Demand Reduction (AFY)</i> (Check one)	<input type="checkbox"/>	1-100 AF	<input type="checkbox"/> 100-1000AF <input type="checkbox"/> 1000+ AF
Water Supply: <i>New Supply Created (AFY)</i> (Check one)	<input type="checkbox"/>	1-100 AF	<input type="checkbox"/> 100-1000AF <input type="checkbox"/> 1000+ AF
Recycled Water: <i>New RW Supply created (AFY)</i> (Check one)	<input type="checkbox"/>	1-100 AF	<input type="checkbox"/> 100-1000AF <input type="checkbox"/> 1000+ AF
Groundwater: <i>Reduction in overdraft/increase in recharge (AFY)</i> (Check one)	<input type="checkbox"/>	1-100 AF	<input type="checkbox"/> 100-1000AF <input type="checkbox"/> 1000+ AF
DACs Involvement	Y/N:		
Public Access, Open Space, Habitat, Recreation (<i>acres created/restored</i>):			
Stormwater: <i>Reduction in Flood Damage (Y/N):</i>	YES	Multi-benefit Y/N:	
Multi-stakeholder project/regional collaboration	Y/N:		
Climate Change: <i>Helps assess potential impacts (Y/N):</i>			
Environmental Stewardship/Public Awareness	Direct Benefits:		
Other: (<i>Describe X amount of benefit</i>)			
Project Criteria			
Please review the project against the IRWM Plan Objectives, Statewide Priorities, Program Preferences, and California Water Plan Resource Management Strategies and place a check in the box if the project meets the criteria.			
IRWM Plan Objectives Met			
Prim.	Second.		
<input type="checkbox"/>	<input type="checkbox"/>	1. Balance average annual future water demands with available future supplies to ensure sustainability throughout the Region between now and the 2035 planning horizon and beyond.	
<input type="checkbox"/>	<input type="checkbox"/>	3. Maintain stability in previously overdrafted groundwater basins and reduce overdraft in groundwater basins experiencing ongoing water table declines.	
<input type="checkbox"/>	<input type="checkbox"/>	7. Provide support and assistance to Disadvantaged Communities and help facilitate projects and programs that benefit those communities.	
<input type="checkbox"/>	<input type="checkbox"/>	8. Protect and restore sensitive environmental areas in coordination with land use and conservation plans to support stewardship and awareness of environmental resources.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	9. Improve stormwater management throughout the Plan area.	
<input type="checkbox"/>	<input type="checkbox"/>	2. Continue improving regional water use efficiency by implementing a portfolio of conservation actions that are regionally cost-effective.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	10. Preserve local beneficial uses as it relates to water quality of water supplied by each source, including groundwater, stormwater, surface water, imported water, and recycled water.	
<input type="checkbox"/>	<input type="checkbox"/>	11. Obtain financial assistance from outside sources to help implement this Plan across a range of project sizes during the planning horizon.	
<input type="checkbox"/>	<input type="checkbox"/>	13. Identify and establish reliable funding sources to maintain, modernize and improve water infrastructure to ensure a high quality, resilient and reliable water supply.	
<input type="checkbox"/>	<input type="checkbox"/>	14. Increase the use of recycled water in the Region while maintaining compliance with the Mojave Basin Area Judgment.	
<input type="checkbox"/>	<input type="checkbox"/>	4. Address the State policy goal of reducing reliance on the Delta by meeting water demands with alternative sources of supply during times when State Water Project (SWP) supplies are reduced or unavailable due to droughts, outages, environmental and regulatory restrictions, or other reasons.	
<input type="checkbox"/>	<input type="checkbox"/>	5. Optimize the use of the Region's water related assets to maximize available supplies to meet projected demands while mitigating against risks. Water related assets to be optimized include financial resources, groundwater storage programs, available imported water supplies, transfer and exchange opportunities, available physical infrastructure, and management policies.	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	12. Improve public awareness of water supply, conservation, water quality, and environmental stewardship challenges and opportunities throughout the planning horizon.	
<input type="checkbox"/>	<input type="checkbox"/>	6. Prevent land subsidence throughout the Region.	

Statewide Priorities

- ☐ Drought Preparedness
- ☐ Use and Reuse Water More Efficiently
- ☐ Climate Change Response Actions (Adaptation to Climate Change, Reduction of Greenhouse Gas Emissions, Reduce Energy Consumption)
- ☐ Expand Environmental Stewardship
- ☒ Practice Integrated Flood Management
- ☐ Protect Surface and Groundwater Quality
- ☐ Improve Tribal Water and Natural Resources
- ☐ Ensure Equitable Distribution of Benefits

Program Preferences

- ☐ Include Regional Projects or Programs
- ☒ Effectively Integrate Water Management Programs and Projects within a Hydrologic Region Identified in the CA Water Plan; the RWQCB Region or Subdivision; or Other Region or Sub-Region Specifically Identified by DWR
- ☐ Effectively Resolve Significant Water-Related Conflicts within or between Regions
- ☐ Contribute to Attainment of One or More of the Objectives of the CALFED Bay-Delta Program
- ☐ Address Critical Water Supply or Water Quality Needs of Disadvantaged Communities within the Region
- ☒ Effectively Integrate Water Management with Land Use Planning

CA Water Plan - Resource Management Strategies

- | | |
|---|---|
| <input type="checkbox"/> Agricultural Lands Stewardship | <input checked="" type="checkbox"/> Pollution Prevention |
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input type="checkbox"/> Precipitation Enhancement |
| <input type="checkbox"/> Conjunctive Management and Groundwater Storage | <input type="checkbox"/> Recharge Areas Protection |
| <input type="checkbox"/> Conveyance - Delta, Regional/Local | <input type="checkbox"/> Recycled Municipal Water |
| <input type="checkbox"/> Desalination - Brackish & Seawater | <input type="checkbox"/> Salt & Salinity Management |
| <input type="checkbox"/> Drinking Water Treatment and Distribution | <input type="checkbox"/> Surface Storage - CALFED |
| <input type="checkbox"/> Economic Incentives | <input type="checkbox"/> Surface Storage - Regional/Local |
| <input type="checkbox"/> Ecosystem Restoration | <input type="checkbox"/> System Reoperation |
| <input checked="" type="checkbox"/> Flood Risk Management | <input type="checkbox"/> Urban Runoff Management |
| <input type="checkbox"/> Forest Management | <input type="checkbox"/> Urban Water Use Efficiency |
| <input type="checkbox"/> Groundwater/Aquifer Remediation | <input type="checkbox"/> Water Transfers |
| <input checked="" type="checkbox"/> Land Use Planning & Management | <input type="checkbox"/> Water-Dependent Recreation |
| <input type="checkbox"/> Matching Water Quality to Water Use | <input type="checkbox"/> Watershed Management |

Mojave Integrated Regional Water Management Plan

Project Identification - Short Form

Note: This two page project identification short form gathers the minimum amount of information required to submit a project for consideration in the IRWM Plan. More information may be required at a later date. This form should be submitted via email or mail BY **August 1, 2013** to comments@mywaterplan.com.

General Information (Required)						
Project Name:	Storm Water Retention and Percolation in Hondo Wash					
Project Sponsor:	Bighorn Desert View Water Agency and Mojave Water Agency (?)					
If Joint Project, Other Partners:						
Project Website (if available):						
Project Contact Person:	Phone	FAX	Email			
Marina West	760-364-2315	760-364-3412	bdvwa2@mindspring.com			
Project Description						
Project Type (e.g. Conceptual, Design, Feasibility Study, Implementable Project, Implementable Program)						
Conceptual						
Project Description (1-2 sentences):						
Retain storm flows in Hondo Wash to enhance percolation potential into Ames groundwater basin (Pipes Subbasin) and provide a mechanism for flood control that does not currently exist. Includes studies to determine quantities of flow that could be captured annually, engineering feasibility for retention and percolation, and environmental impact overview (Initial Study). Water could be retained behind shallow berms or even dam structures along narrow sections of the wash. Water that is successfully captured and percolated minimizes downstream flood damage from scouring and preserves a resource that is otherwise wasted (flows to dry lake bed for evaporation).						
Project Integration (Describe how the project does or could integrate with other projects in the Region):						
Flood control and rainwater capture and reuse are region challenges.						
Project Source (Cite Plan(s) to which the project belongs [e.g., Watershed Master Plans, Capital Improvement Plans]):						
Conceptual						
Project Location						
Descriptive (Description of property location etc.):						
Along "upper" Hondo Wash above the desert floor where rainfall totals are highest. Concept could be applied to other washes in the water shed (Pipes Wash, Covington Wash, Water Canyon - all in the Morongo Basin. Probably similar areas outside the Morongo Basin).						
Latitude/Longitude - info available at: http://geocoder.us/		Lat: 34.250787	Long: -116.463356			
Estimated Capital Costs: (Note estimated cost, if known OR check rough estimate):						
Estimated Cost:		<\$100K <input type="checkbox"/>	\$100K - \$1M <input checked="" type="checkbox"/>	\$1M - \$10M <input type="checkbox"/>		
est. near \$100K				>\$10M <input type="checkbox"/>		
Project Status (Check all that apply):		Conceptual <input checked="" type="checkbox"/>	In-Design <input type="checkbox"/>	Ready to Implement <input type="checkbox"/>		
				CEQA Complete <input type="checkbox"/>		
				N/A <input type="checkbox"/>		
Estimated Year of Completion:		2014-2025				

Project Benefits			
Water Demand: <i>Water Savings/Demand Reduction (AFY)</i> (Check one)	<input checked="" type="checkbox"/>	1-100 AF	<input type="checkbox"/> 100-1000AF <input type="checkbox"/> 1000+ AF
Water Supply: <i>New Supply Created (AFY)</i> (Check one)	<input checked="" type="checkbox"/>	1-100 AF	<input type="checkbox"/> 100-1000AF <input type="checkbox"/> 1000+ AF
Recycled Water: <i>New RW Supply created (AFY)</i> (Check one)	<input type="checkbox"/>	1-100 AF	<input type="checkbox"/> 100-1000AF <input type="checkbox"/> 1000+ AF
Groundwater: <i>Reduction in overdraft/increase in recharge (AFY)</i> (Check one)	<input checked="" type="checkbox"/>	1-100 AF	<input type="checkbox"/> 100-1000AF <input type="checkbox"/> 1000+ AF
DACs Involvement	Y/N:	Yes	
Public Access, Open Space, Habitat, Recreation (<i>acres created/restored</i>):			
Stormwater: <i>Reduction in Flood Damage (Y/N)</i> :	Yes	Multi-benefit Y/N: Y (?)	
Multi-stakeholder project/regional collaboration	Y/N:	Y - possibly with similar projects	
Climate Change: <i>Helps assess potential impacts (Y/N)</i> :			
Environmental Stewardship/Public Awareness	Direct Benefits:		
Other: (<i>Describe X amount of benefit</i>)			
If 100 AF could be captured and percolated per year that would provide for about 7% of the groundwater resource used by multiple parties under the Ames/Reche Groundwater Management Plan and Stipulated Judgment if that water was otherwise counted as lost due to runoff during high flow storm events.			
Project Criteria			
Please review the project against the IRWM Plan Objectives, Statewide Priorities, Program Preferences, and California Water Plan Resource Management Strategies and place a check in the box if the project meets the criteria.			
IRWM Plan Objectives Met			
Prim.	Second.		
<input checked="" type="checkbox"/>	<input type="checkbox"/>	1. Balance average annual future water demands with available future supplies to ensure sustainability throughout the Region between now and the 2035 planning horizon and beyond.	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3. Maintain stability in previously overdrafted groundwater basins and reduce overdraft in groundwater basins experiencing ongoing water table declines.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7. Provide support and assistance to Disadvantaged Communities and help facilitate projects and programs that benefit those communities.	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	8. Protect and restore sensitive environmental areas in coordination with land use and conservation plans to support stewardship and awareness of environmental resources.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	9. Improve stormwater management throughout the Plan area.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	2. Continue improving regional water use efficiency by implementing a portfolio of conservation actions that are regionally cost-effective.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	10. Preserve local beneficial uses as it relates to water quality of water supplied by each source, including groundwater, stormwater, surface water, imported water, and recycled water.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	11. Obtain financial assistance from outside sources to help implement this Plan across a range of project sizes during the planning horizon.	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	13. Identify and establish reliable funding sources to maintain, modernize and improve water infrastructure to ensure a high quality, resilient and reliable water supply.	
<input type="checkbox"/>	<input type="checkbox"/>	14. Increase the use of recycled water in the Region while maintaining compliance with the Mojave Basin Area Judgment.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	4. Address the State policy goal of reducing reliance on the Delta by meeting water demands with alternative sources of supply during times when State Water Project (SWP) supplies are reduced or unavailable due to droughts, outages, environmental and regulatory restrictions, or other reasons.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	5. Optimize the use of the Region's water related assets to maximize available supplies to meet projected demands while mitigating against risks. Water related assets to be optimized include financial resources, groundwater storage programs, available imported water supplies, transfer and exchange opportunities, available physical infrastructure, and management policies.	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	12. Improve public awareness of water supply, conservation, water quality, and environmental stewardship challenges and opportunities throughout the planning horizon.	
<input type="checkbox"/>	<input type="checkbox"/>	6. Prevent land subsidence throughout the Region.	

Statewide Priorities			
<input checked="" type="checkbox"/>	Drought Preparedness		
<input checked="" type="checkbox"/>	Use and Reuse Water More Efficiently		
<input checked="" type="checkbox"/>	Climate Change Response Actions (Adaptation to Climate Change, Reduction of Greenhouse Gas Emissions, Reduce Energy Consumption)		
<input type="checkbox"/>	Expand Environmental Stewardship		
<input checked="" type="checkbox"/>	Practice Integrated Flood Management		
<input checked="" type="checkbox"/>	Protect Surface and Groundwater Quality		
<input type="checkbox"/>	Improve Tribal Water and Natural Resources		
<input checked="" type="checkbox"/>	Ensure Equitable Distribution of Benefits		
Program Preferences			
<input type="checkbox"/>	Include Regional Projects or Programs		
<input type="checkbox"/>	Effectively Integrate Water Management Programs and Projects within a Hydrologic Region Identified in the CA Water Plan; the RWQCB Region or Subdivision; or Other Region or Sub-Region Specifically Identified by DWR		
<input type="checkbox"/>	Effectively Resolve Significant Water-Related Conflicts within or between Regions		
<input type="checkbox"/>	Contribute to Attainment of One or More of the Objectives of the CALFED Bay-Delta Program		
<input type="checkbox"/>	Address Critical Water Supply or Water Quality Needs of Disadvantaged Communities within the Region		
<input type="checkbox"/>	Effectively Integrate Water Management with Land Use Planning		
CA Water Plan - Resource Management Strategies			
<input type="checkbox"/>	Agricultural Lands Stewardship	<input type="checkbox"/>	Pollution Prevention
<input type="checkbox"/>	Agricultural Water Use Efficiency	<input type="checkbox"/>	Precipitation Enhancement
<input checked="" type="checkbox"/>	Conjunctive Management and Groundwater Storage	<input type="checkbox"/>	Recharge Areas Protection
<input checked="" type="checkbox"/>	Conveyance - Delta, Regional/Local	<input type="checkbox"/>	Recycled Municipal Water
<input type="checkbox"/>	Desalination - Brackish & Seawater	<input type="checkbox"/>	Salt & Salinity Management
<input type="checkbox"/>	Drinking Water Treatment and Distribution	<input type="checkbox"/>	Surface Storage - CALFED
<input type="checkbox"/>	Economic Incentives	<input type="checkbox"/>	Surface Storage - Regional/Local
<input type="checkbox"/>	Ecosystem Restoration	<input type="checkbox"/>	System Reoperation
<input checked="" type="checkbox"/>	Flood Risk Management	<input checked="" type="checkbox"/>	Urban Runoff Management
<input type="checkbox"/>	Forest Management	<input type="checkbox"/>	Urban Water Use Efficiency
<input type="checkbox"/>	Groundwater/Aquifer Remediation	<input type="checkbox"/>	Water Transfers
<input checked="" type="checkbox"/>	Land Use Planning & Management	<input type="checkbox"/>	Water-Dependent Recreation
<input type="checkbox"/>	Matching Water Quality to Water Use	<input checked="" type="checkbox"/>	Watershed Management

Mojave Integrated Regional Water Management Plan

Project Identification - Short Form

Note: This two page project identification short form gathers the minimum amount of information required to submit a project for consideration in the IRWM Plan. More information may be required at a later date. This form should be submitted via email or mail BY **August 1, 2013** to comments@mywaterplan.com.

General Information (Required)				
Project Name:	JBWD Stormwater Recovery Project			
Project Sponsor:	Joshua Basin Water District			
If Joint Project, Other Partners:				
Project Website (if available):				
Project Contact Person:	Phone	FAX	Email	
Susan Greer, AGM	760.366.8438 x225	760.366.9528	SGreer@jbwd.com	
Project Description				
Project Type (e.g. Conceptual, Design, Feasibility Study, Implementable Project, Implementable Program)				
Design, Environmental and Construction of Stormwater Recovery Facilities				
Project Description (1 -2 sentences):				
Proposed facilities will capture and divert stormwater from local arroyos to the District's newly constructed recharge basins to increase groundwater basin recharge and minimize downstream impacts, and increase graywater capture. Both options will decrease need for imported water supplies.				
Project Integration (Describe how the project does or could integrate with other projects in the Region):				
The proposed stormwater recharge and graywater systems will increase groundwater replenishment, add to regional water supply, decreasing local subsidence, capturing additional water resources, and protects groundwater quality.				
Project Source (Cite Plan(s) to which the project belongs [e.g., Watershed Master Plans, Capital Improvement Plans]):				
Groundwater Basin Management Plan, Regional Water Quality Control Board Planning Documents				
Project Location				
Descriptive (Description of property location etc.):				
Stormwater facilities would be located adjacent to the District's recharge facility at the terminus of Verbena Street, adjacent to a local channelized arroyo.				
Latitude/Longitude - info available at: http://geocoder.us/		Lat:	34°08'20" N	Long: 116°18'00" W
Estimated Capital Costs: (Note estimated cost, if known OR check rough estimate):				
Estimated Cost:	<\$100K <input type="checkbox"/>	\$100K - \$1M <input type="checkbox"/>	\$1M - \$10M <input checked="" type="checkbox"/>	>\$10M <input type="checkbox"/>
Project Status (Check all that apply):	Conceptual <input checked="" type="checkbox"/>	In-Design <input type="checkbox"/>	Ready to Implement <input type="checkbox"/>	CEQA Complete <input type="checkbox"/> N/A <input type="checkbox"/>
Estimated Year of Completion:	Design, environmental & construction complete in 2016, if funding available 2014			

Project Benefits			
Water Demand: <i>Water Savings/Demand Reduction (AFY)</i> (Check one)	<input type="checkbox"/> 1-100 AF	<input checked="" type="checkbox"/> 100-1000AF	<input type="checkbox"/> 1000+ AF
Water Supply: <i>New Supply Created (AFY)</i> (Check one)	<input type="checkbox"/> 1-100 AF	<input checked="" type="checkbox"/> 100-1000AF	<input type="checkbox"/> 1000+ AF
Recycled Water: <i>New RW Supply created (AFY)</i> (Check one)	<input type="checkbox"/> 1-100 AF	<input type="checkbox"/> 100-1000AF	<input type="checkbox"/> 1000+ AF
Groundwater: <i>Reduction in overdraft/increase in recharge (AFY)</i> (Check one)	<input type="checkbox"/> 1-100 AF	<input checked="" type="checkbox"/> 100-1000AF	<input type="checkbox"/> 1000+ AF
DACs Involvement	Y/N: Yes		
Public Access, Open Space, Habitat, Recreation (<i>acres created/restored</i>):			
Stormwater: <i>Reduction in Flood Damage (Y/N)</i> :	Yes	Multi-benefit Y/N:	Yes
Multi-stakeholder project/regional collaboration	Y/N: Yes		
Climate Change: <i>Helps assess potential impacts (Y/N)</i> :	No		
Environmental Stewardship/Public Awareness	Direct Benefits: Yes, basin replenishment & flood control		
Other: (<i>Describe X amount of benefit</i>)			
Increased groundwater recharge, flood damage prevention, groundwater quality enhancements, increased water supply, reduced ground subsidence, decreased import water dependency			
Project Criteria			
Please review the project against the IRWM Plan Objectives, Statewide Priorities, Program Preferences, and California Water Plan Resource Management Strategies and place a check in the box if the project meets the criteria.			
IRWM Plan Objectives Met			
Prim.	Second.		
<input checked="" type="checkbox"/>	<input type="checkbox"/>	1. Balance average annual future water demands with available future supplies to ensure sustainability throughout the Region between now and the 2035 planning horizon and beyond.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3. Maintain stability in previously overdrafted groundwater basins and reduce overdraft in groundwater basins experiencing ongoing water table declines.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7. Provide support and assistance to Disadvantaged Communities and help facilitate projects and programs that benefit those communities.	
<input type="checkbox"/>	<input type="checkbox"/>	8. Protect and restore sensitive environmental areas in coordination with land use and conservation plans to support stewardship and awareness of environmental resources.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	9. Improve stormwater management throughout the Plan area.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	2. Continue improving regional water use efficiency by implementing a portfolio of conservation actions that are regionally cost-effective.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	10. Preserve local beneficial uses as it relates to water quality of water supplied by each source, including groundwater, stormwater, surface water, imported water, and recycled water.	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	11. Obtain financial assistance from outside sources to help implement this Plan across a range of project sizes during the planning horizon.	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	13. Identify and establish reliable funding sources to maintain, modernize and improve water infrastructure to ensure a high quality, resilient and reliable water supply.	
<input type="checkbox"/>	<input type="checkbox"/>	14. Increase the use of recycled water in the Region while maintaining compliance with the Mojave Basin Area Judgment.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	4. Address the State policy goal of reducing reliance on the Delta by meeting water demands with alternative sources of supply during times when State Water Project (SWP) supplies are reduced or unavailable due to droughts, outages, environmental and regulatory restrictions, or other reasons.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	5. Optimize the use of the Region's water related assets to maximize available supplies to meet projected demands while mitigating against risks. Water related assets to be optimized include financial resources, groundwater storage programs, available imported water supplies, transfer and exchange opportunities, available physical infrastructure, and management policies.	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	12. Improve public awareness of water supply, conservation, water quality, and environmental stewardship challenges and opportunities throughout the planning horizon.	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	6. Prevent land subsidence throughout the Region.	

Statewide Priorities

- ☒ Drought Preparedness
- ☒ Use and Reuse Water More Efficiently
- ☐ Climate Change Response Actions (Adaptation to Climate Change, Reduction of Greenhouse Gas Emissions, Reduce Energy Consumption)
- ☒ Expand Environmental Stewardship
- ☒ Practice Integrated Flood Management
- ☒ Protect Surface and Groundwater Quality
- ☐ Improve Tribal Water and Natural Resources
- ☒ Ensure Equitable Distribution of Benefits

Program Preferences

- ☒ Include Regional Projects or Programs
- ☒ Effectively Integrate Water Management Programs and Projects within a Hydrologic Region Identified in the CA Water Plan; the RWQCB Region or Subdivision; or Other Region or Sub-Region Specifically Identified by DWR
- ☒ Effectively Resolve Significant Water-Related Conflicts within or between Regions
- ☒ Contribute to Attainment of One or More of the Objectives of the CALFED Bay-Delta Program
- ☒ Address Critical Water Supply or Water Quality Needs of Disadvantaged Communities within the Region
- ☐ Effectively Integrate Water Management with Land Use Planning

CA Water Plan - Resource Management Strategies

- | | |
|--|---|
| <input type="checkbox"/> Agricultural Lands Stewardship | <input checked="" type="checkbox"/> Pollution Prevention |
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input type="checkbox"/> Precipitation Enhancement |
| <input checked="" type="checkbox"/> Conjunctive Management and Groundwater Storage | <input checked="" type="checkbox"/> Recharge Areas Protection |
| <input type="checkbox"/> Conveyance - Delta, Regional/Local | <input type="checkbox"/> Recycled Municipal Water |
| <input type="checkbox"/> Desalination - Brackish & Seawater | <input type="checkbox"/> Salt & Salinity Management |
| <input type="checkbox"/> Drinking Water Treatment and Distribution | <input type="checkbox"/> Surface Storage - CALFED |
| <input type="checkbox"/> Economic Incentives | <input type="checkbox"/> Surface Storage - Regional/Local |
| <input checked="" type="checkbox"/> Ecosystem Restoration | <input type="checkbox"/> System Reoperation |
| <input checked="" type="checkbox"/> Flood Risk Management | <input checked="" type="checkbox"/> Urban Runoff Management |
| <input type="checkbox"/> Forest Management | <input type="checkbox"/> Urban Water Use Efficiency |
| <input checked="" type="checkbox"/> Groundwater/Aquifer Remediation | <input type="checkbox"/> Water Transfers |
| <input type="checkbox"/> Land Use Planning & Management | <input type="checkbox"/> Water-Dependent Recreation |
| <input checked="" type="checkbox"/> Matching Water Quality to Water Use | <input checked="" type="checkbox"/> Watershed Management |

Mojave Integrated Regional Water Management Plan

Project Identification - Short Form

Note: This two page project identification short form gathers the minimum amount of information required to submit a project for consideration in the IRWM Plan. More information may be required at a later date. This form should be submitted via email or mail BY **August 1, 2013** to comments@mywaterplan.com.

General Information (Required)				
Project Name:	JBWD Graywater & Rainwater Harvesting Project			
Project Sponsor:	Joshua Basin Water District			
If Joint Project, Other Partners:				
Project Website (if available):				
Project Contact Person:	Phone	FAX	Email	
Susan Greer, AGM	760.366.8438 x225	760.366.9528	SGreer@jbwd.com	
Project Description				
Project Type (e.g. Conceptual, Design, Feasibility Study, Implementable Project, Implementable Program)				
Planning, Design, Education & Implementation of Graywater & Rainwater Harvesting Facilities				
Project Description (1 -2 sentences):				
Proposed program will develop standards and facilities for private property capture of graywater and rainwater to supplement local water resources. Project complements the District's new imported water recharge project, and educates property owners in how they can contribute to increasing local water supplies and conserve groundwater.				
Project Integration (Describe how the project does or could integrate with other projects in the Region):				
The proposed program will reduce groundwater depletion, add to regional water supply, decreasing local subsidence, capturing additional water resources, and educate local customers in water conservation efforts.				
Project Source (Cite Plan(s) to which the project belongs [e.g., Watershed Master Plans, Capital Improvement Plans]):				
Groundwater Basin Management Plan, Regional Water Quality Control Board Planning Documents				
Project Location				
Descriptive (Description of property location etc.):				
Facilities would be located in private properties, with demonstration project adjacent to the District's recharge facility and/or offices to promote educational aspect of the program.				
Latitude/Longitude - info available at: http://geocoder.us/		Lat:	Long:	
Estimated Capital Costs: (Note estimated cost, if known OR check rough estimate):				
Estimated Cost:	<\$100K	\$100K - \$1M	\$1M - \$10M	>\$10M
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Project Status (Check all that apply):	Conceptual	In-Design	Ready to Implement	CEQA Complete N/A
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Estimated Year of Completion:	Complete in 2016, if funding available 2014			

Project Benefits			
Water Demand: <i>Water Savings/Demand Reduction (AFY)</i> (Check one)	<input checked="" type="checkbox"/> 1-100 AF	<input type="checkbox"/> 100-1000AF	<input type="checkbox"/> 1000+ AF
Water Supply: <i>New Supply Created (AFY)</i> (Check one)	<input checked="" type="checkbox"/> 1-100 AF	<input type="checkbox"/> 100-1000AF	<input type="checkbox"/> 1000+ AF
Recycled Water: <i>New RW Supply created (AFY)</i> (Check one)	<input type="checkbox"/> 1-100 AF	<input type="checkbox"/> 100-1000AF	<input type="checkbox"/> 1000+ AF
Groundwater: <i>Reduction in overdraft/increase in recharge (AFY)</i> (Check one)	<input checked="" type="checkbox"/> 1-100 AF	<input type="checkbox"/> 100-1000AF	<input type="checkbox"/> 1000+ AF
DACs Involvement	Y/N: Yes		
Public Access, Open Space, Habitat, Recreation (<i>acres created/restored</i>):			
Stormwater: <i>Reduction in Flood Damage (Y/N):</i>	Yes	Multi-benefit Y/N:	Yes
Multi-stakeholder project/regional collaboration	Y/N: Yes		
Climate Change: <i>Helps assess potential impacts (Y/N):</i>	No		
Environmental Stewardship/Public Awareness	Direct Benefits: Yes, conservation		
Other: (<i>Describe X amount of benefit</i>)			
Increased water supply, reduced ground subsidence, decreased import water dependency			
Project Criteria			
Please review the project against the IRWM Plan Objectives, Statewide Priorities, Program Preferences, and California Water Plan Resource Management Strategies and place a check in the box if the project meets the criteria.			
IRWM Plan Objectives Met			
Prim.	Second.		
<input checked="" type="checkbox"/>	<input type="checkbox"/>	1. Balance average annual future water demands with available future supplies to ensure sustainability throughout the Region between now and the 2035 planning horizon and beyond.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3. Maintain stability in previously overdrafted groundwater basins and reduce overdraft in groundwater basins experiencing ongoing water table declines.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7. Provide support and assistance to Disadvantaged Communities and help facilitate projects and programs that benefit those communities.	
<input type="checkbox"/>	<input type="checkbox"/>	8. Protect and restore sensitive environmental areas in coordination with land use and conservation plans to support stewardship and awareness of environmental resources.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	9. Improve stormwater management throughout the Plan area.	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2. Continue improving regional water use efficiency by implementing a portfolio of conservation actions that are regionally cost-effective.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	10. Preserve local beneficial uses as it relates to water quality of water supplied by each source, including groundwater, stormwater, surface water, imported water, and recycled water.	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	11. Obtain financial assistance from outside sources to help implement this Plan across a range of project sizes during the planning horizon.	
<input type="checkbox"/>	<input type="checkbox"/>	13. Identify and establish reliable funding sources to maintain, modernize and improve water infrastructure to ensure a high quality, resilient and reliable water supply.	
<input type="checkbox"/>	<input type="checkbox"/>	14. Increase the use of recycled water in the Region while maintaining compliance with the Mojave Basin Area Judgment.	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	4. Address the State policy goal of reducing reliance on the Delta by meeting water demands with alternative sources of supply during times when State Water Project (SWP) supplies are reduced or unavailable due to droughts, outages, environmental and regulatory restrictions, or other reasons.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	5. Optimize the use of the Region's water related assets to maximize available supplies to meet projected demands while mitigating against risks. Water related assets to be optimized include financial resources, groundwater storage programs, available imported water supplies, transfer and exchange opportunities, available physical infrastructure, and management policies.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	12. Improve public awareness of water supply, conservation, water quality, and environmental stewardship challenges and opportunities throughout the planning horizon.	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	6. Prevent land subsidence throughout the Region.	

Statewide Priorities

- ☒ Drought Preparedness
- ☒ Use and Reuse Water More Efficiently
- ☐ Climate Change Response Actions (Adaptation to Climate Change, Reduction of Greenhouse Gas Emissions, Reduce Energy Consumption)
- ☒ Expand Environmental Stewardship
- ☐ Practice Integrated Flood Management
- ☐ Protect Surface and Groundwater Quality
- ☐ Improve Tribal Water and Natural Resources
- ☒ Ensure Equitable Distribution of Benefits

Program Preferences

- ☒ Include Regional Projects or Programs
- ☒ Effectively Integrate Water Management Programs and Projects within a Hydrologic Region Identified in the CA Water Plan; the RWQCB Region or Subdivision; or Other Region or Sub-Region Specifically Identified by DWR
- ☐ Effectively Resolve Significant Water-Related Conflicts within or between Regions
- ☒ Contribute to Attainment of One or More of the Objectives of the CALFED Bay-Delta Program
- ☒ Address Critical Water Supply or Water Quality Needs of Disadvantaged Communities within the Region
- ☒ Effectively Integrate Water Management with Land Use Planning

CA Water Plan - Resource Management Strategies

- | | |
|---|---|
| <input type="checkbox"/> Agricultural Lands Stewardship | <input checked="" type="checkbox"/> Pollution Prevention |
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input type="checkbox"/> Precipitation Enhancement |
| <input type="checkbox"/> Conjunctive Management and Groundwater Storage | <input type="checkbox"/> Recharge Areas Protection |
| <input type="checkbox"/> Conveyance - Delta, Regional/Local | <input type="checkbox"/> Recycled Municipal Water |
| <input type="checkbox"/> Desalination - Brackish & Seawater | <input type="checkbox"/> Salt & Salinity Management |
| <input type="checkbox"/> Drinking Water Treatment and Distribution | <input type="checkbox"/> Surface Storage - CALFED |
| <input type="checkbox"/> Economic Incentives | <input type="checkbox"/> Surface Storage - Regional/Local |
| <input type="checkbox"/> Ecosystem Restoration | <input checked="" type="checkbox"/> System Reoperation |
| <input checked="" type="checkbox"/> Flood Risk Management | <input checked="" type="checkbox"/> Urban Runoff Management |
| <input type="checkbox"/> Forest Management | <input type="checkbox"/> Urban Water Use Efficiency |
| <input checked="" type="checkbox"/> Groundwater/Aquifer Remediation | <input type="checkbox"/> Water Transfers |
| <input checked="" type="checkbox"/> Land Use Planning & Management | <input type="checkbox"/> Water-Dependent Recreation |
| <input checked="" type="checkbox"/> Matching Water Quality to Water Use | <input checked="" type="checkbox"/> Watershed Management |

Mojave Integrated Regional Water Management Plan

Project Identification - Short Form

Note: This two page project identification short form gathers the minimum amount of information required to submit a project for consideration in the IRWM Plan. More information may be required at a later date. This form should be submitted via email or mail BY **August 1, 2013** to comments@mywaterplan.com.

General Information (Required)				
Project Name:	Cushenbury Flood Detention Basin			
Project Sponsor:	Mojave Water Agency			
If Joint Project, Other Partners:				
Project Website (if available):				
Project Contact Person:	Phone	FAX	Email	
Tim Gobler	760-946-7046		tgobler@mojavewater.org	
Project Description				
Project Type (e.g. Conceptual, Design, Feasibility Study, Implementable Project, Implementable Program)				
Conceptual				
Project Description (1-2 sentences):				
Proposed to capture runoff from the San Bernardino Mountains in the Lucerne Valley Subbasin. Currently, large storm flows drain to dry lake beds in the area that have low percolation rates. Consequently, the majority of water that drains to the lake beds is lost to evaporation and never enters the basin. The project would divert storm flows to detention basins with high rates of percolation to decrease losses from evaporation.				
Project Integration (Describe how the project does or could integrate with other projects in the Region):				
Project Source (Cite Plan(s) to which the project belongs [e.g., Watershed Master Plans, Capital Improvement Plans]):				
Project Location				
Descriptive (Description of property location etc.):				
Lucerne Valley				
Latitude/Longitude - info available at: http://geocoder.us/				
Lat:		Long:		
Estimated Capital Costs: (Note estimated cost, if known OR check rough estimate):				
Estimated Cost:	<\$100K <input type="checkbox"/>	\$100K - \$1M <input checked="" type="checkbox"/>	\$1M - \$10M <input type="checkbox"/>	>\$10M <input type="checkbox"/>
Project Status (Check all that apply):	Conceptual <input checked="" type="checkbox"/>	In-Design <input type="checkbox"/>	Ready to Implement <input type="checkbox"/>	CEQA Complete <input type="checkbox"/> N/A <input type="checkbox"/>
Estimated Year of Completion:				

Project Benefits			
Water Demand: <i>Water Savings/Demand Reduction (AFY)</i> (Check one)	<input type="checkbox"/>	1-100 AF	<input type="checkbox"/> 100-1000AF <input type="checkbox"/> 1000+ AF
Water Supply: <i>New Supply Created (AFY)</i> (Check one)	<input type="checkbox"/>	1-100 AF	<input checked="" type="checkbox"/> 100-1000AF <input type="checkbox"/> 1000+ AF
Recycled Water: <i>New RW Supply created (AFY)</i> (Check one)	<input type="checkbox"/>	1-100 AF	<input type="checkbox"/> 100-1000AF <input type="checkbox"/> 1000+ AF
Groundwater: <i>Reduction in overdraft/increase in recharge (AFY)</i> (Check one)	<input type="checkbox"/>	1-100 AF	<input checked="" type="checkbox"/> 100-1000AF <input type="checkbox"/> 1000+ AF
DACs Involvement	Y/N:		Y
Public Access, Open Space, Habitat, Recreation (<i>acres created/restored</i>):			N
Stormwater: <i>Reduction in Flood Damage (Y/N):</i>	Y		Multi-benefit Y/N: Y
Multi-stakeholder project/regional collaboration	Y/N:		Y
Climate Change: <i>Helps assess potential impacts (Y/N):</i>			N
Environmental Stewardship/Public Awareness	Direct Benefits:	N	
Other: (Describe X amount of benefit)			
Project Criteria			
Please review the project against the IRWM Plan Objectives, Statewide Priorities, Program Preferences, and California Water Plan Resource Management Strategies and place a check in the box if the project meets the criteria.			
IRWM Plan Objectives Met			
Prim.	Second.		
<input checked="" type="checkbox"/>	<input type="checkbox"/>	1. Balance average annual future water demands with available future supplies to ensure sustainability throughout the Region between now and the 2035 planning horizon and beyond.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3. Maintain stability in previously overdrafted groundwater basins and reduce overdraft in groundwater basins experiencing ongoing water table declines.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7. Provide support and assistance to Disadvantaged Communities and help facilitate projects and programs that benefit those communities.	
<input type="checkbox"/>	<input type="checkbox"/>	8. Protect and restore sensitive environmental areas in coordination with land use and conservation plans to support stewardship and awareness of environmental resources.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	9. Improve stormwater management throughout the Plan area.	
<input type="checkbox"/>	<input type="checkbox"/>	2. Continue improving regional water use efficiency by implementing a portfolio of conservation actions that are regionally cost-effective.	
<input type="checkbox"/>	<input type="checkbox"/>	10. Preserve local beneficial uses as it relates to water quality of water supplied by each source, including groundwater, stormwater, surface water, imported water, and recycled water.	
<input type="checkbox"/>	<input type="checkbox"/>	11. Obtain financial assistance from outside sources to help implement this Plan across a range of project sizes during the planning horizon.	
<input type="checkbox"/>	<input type="checkbox"/>	13. Identify and establish reliable funding sources to maintain, modernize and improve water infrastructure to ensure a high quality, resilient and reliable water supply.	
<input type="checkbox"/>	<input type="checkbox"/>	14. Increase the use of recycled water in the Region while maintaining compliance with the Mojave Basin Area Judgment.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	4. Address the State policy goal of reducing reliance on the Delta by meeting water demands with alternative sources of supply during times when State Water Project (SWP) supplies are reduced or unavailable due to droughts, outages, environmental and regulatory restrictions, or other reasons.	
<input type="checkbox"/>	<input type="checkbox"/>	5. Optimize the use of the Region's water related assets to maximize available supplies to meet projected demands while mitigating against risks. Water related assets to be optimized include financial resources, groundwater storage programs, available imported water supplies, transfer and exchange opportunities, available physical infrastructure, and management policies.	
<input type="checkbox"/>	<input type="checkbox"/>	12. Improve public awareness of water supply, conservation, water quality, and environmental stewardship challenges and opportunities throughout the planning horizon.	
<input type="checkbox"/>	<input type="checkbox"/>	6. Prevent land subsidence throughout the Region.	

Statewide Priorities			
<input type="checkbox"/>	Drought Preparedness		
<input type="checkbox"/>	Use and Reuse Water More Efficiently		
<input type="checkbox"/>	Climate Change Response Actions (Adaptation to Climate Change, Reduction of Greenhouse Gas Emissions, Reduce Energy Consumption)		
<input type="checkbox"/>	Expand Environmental Stewardship		
<input checked="" type="checkbox"/>	Practice Integrated Flood Management		
<input checked="" type="checkbox"/>	Protect Surface and Groundwater Quality		
<input type="checkbox"/>	Improve Tribal Water and Natural Resources		
<input type="checkbox"/>	Ensure Equitable Distribution of Benefits		
Program Preferences			
<input checked="" type="checkbox"/>	Include Regional Projects or Programs		
<input type="checkbox"/>	Effectively Integrate Water Management Programs and Projects within a Hydrologic Region Identified in the CA Water Plan; the RWQCB Region or Subdivision; or Other Region or Sub-Region Specifically Identified by DWR		
<input type="checkbox"/>	Effectively Resolve Significant Water-Related Conflicts within or between Regions		
<input type="checkbox"/>	Contribute to Attainment of One or More of the Objectives of the CALFED Bay-Delta Program		
<input type="checkbox"/>	Address Critical Water Supply or Water Quality Needs of Disadvantaged Communities within the Region		
<input checked="" type="checkbox"/>	Effectively Integrate Water Management with Land Use Planning		
CA Water Plan - Resource Management Strategies			
<input type="checkbox"/>	Agricultural Lands Stewardship	<input type="checkbox"/>	Pollution Prevention
<input type="checkbox"/>	Agricultural Water Use Efficiency	<input checked="" type="checkbox"/>	Precipitation Enhancement
<input checked="" type="checkbox"/>	Conjunctive Management and Groundwater Storage	<input checked="" type="checkbox"/>	Recharge Areas Protection
<input type="checkbox"/>	Conveyance - Delta, Regional/Local	<input type="checkbox"/>	Recycled Municipal Water
<input type="checkbox"/>	Desalination - Brackish & Seawater	<input type="checkbox"/>	Salt & Salinity Management
<input type="checkbox"/>	Drinking Water Treatment and Distribution	<input type="checkbox"/>	Surface Storage - CALFED
<input type="checkbox"/>	Economic Incentives	<input type="checkbox"/>	Surface Storage - Regional/Local
<input type="checkbox"/>	Ecosystem Restoration	<input type="checkbox"/>	System Reoperation
<input checked="" type="checkbox"/>	Flood Risk Management	<input checked="" type="checkbox"/>	Urban Runoff Management
<input type="checkbox"/>	Forest Management	<input type="checkbox"/>	Urban Water Use Efficiency
<input type="checkbox"/>	Groundwater/Aquifer Remediation	<input type="checkbox"/>	Water Transfers
<input checked="" type="checkbox"/>	Land Use Planning & Management	<input type="checkbox"/>	Water-Dependent Recreation
<input type="checkbox"/>	Matching Water Quality to Water Use	<input checked="" type="checkbox"/>	Watershed Management

Mojave Integrated Regional Water Management Plan

Project Identification - Short Form

Note: This two page project identification short form gathers the minimum amount of information required to submit a project for consideration in the IRWM Plan. More information may be required at a later date. This form should be submitted via email or mail BY **September 12, 2013** to comments@mywaterplan.com.

General Information (Required)				
Project Name:	BSI#2 Baja Major Storm Diversion Network			
Project Sponsor:	MWA			
If Joint Project, Other Partners:	BSAC, Baja Minimal Producers, RCD, J&E Johnson			
Project Website (if available):				
Project Contact Person:	Phone	FAX	Email	
Curt James	760-946-7016		cjames@mojavewater.org	
Project Description				
Project Type (e.g. Conceptual, Design, Feasibility Study, Implementable Project, Implementable Program)				
Conceptual				
Project Description (1 -2 sentences):				
(Baja Sustainability Initiative #2) A major storm event diversion network to capture storm flows and transfer them to retention ponds that could then be disbursed on the south side of the valley to help facilitate recharge and recovery in areas that are unable to receive any natural benefit from storm flows that run down the river. A reduction in the velocity of the storm flows could also greatly assist in the prevention of scouring Cady Riparian Habitat. This would also include investigation into the possible utilization of pit at Kewitt, possible installation of weirs and irrigation channels to divert flood waters to percolation ponds, injection wells.				
Project Integration (Describe how the project does or could integrate with other projects in the Region):				
BSI#2-8,9,43,47,75				
Project Source (Cite Plan(s) to which the project belongs [e.g., Watershed Master Plans, Capital Improvement Plans]):				
Project Location				
Descriptive (Description of property location etc.):				
Baja Sub Area				
Latitude/Longitude - info available at:		http://geocoder.us/		Lat: <input style="width: 100px;" type="text"/>
				Long: <input style="width: 100px;" type="text"/>
Estimated Capital Costs: (Note estimated cost, if known OR check rough estimate):				
Estimated Cost:	<input type="checkbox"/> <\$100K	<input type="checkbox"/> \$100K - \$1M	<input checked="" type="checkbox"/> \$1M - \$10M	<input type="checkbox"/> >\$10M
Project Status (Check all that apply):	<input type="checkbox"/> Conceptual	<input type="checkbox"/> In-Design	<input type="checkbox"/> Ready to Implement	<input type="checkbox"/> CEQA Complete <input type="checkbox"/> N/A
Estimated Year of Completion:				

Project Benefits			
Water Demand: <i>Water Savings/Demand Reduction (AFY)</i> (Check one)	<input type="checkbox"/>	1-100 AF	<input type="checkbox"/> 100-1000AF <input type="checkbox"/> 1000+ AF
Water Supply: <i>New Supply Created (AFY)</i> (Check one)	<input type="checkbox"/>	1-100 AF	<input type="checkbox"/> 100-1000AF <input checked="" type="checkbox"/> 1000+ AF
Recycled Water: <i>New RW Supply created (AFY)</i> (Check one)	<input type="checkbox"/>	1-100 AF	<input type="checkbox"/> 100-1000AF <input type="checkbox"/> 1000+ AF
Groundwater: <i>Reduction in overdraft/increase in recharge (AFY)</i> (Check one)	<input type="checkbox"/>	1-100 AF	<input type="checkbox"/> 100-1000AF <input checked="" type="checkbox"/> 1000+ AF
DACs Involvement	Y/N:		Y
Public Access, Open Space, Habitat, Recreation (<i>acres created/restored</i>):			
Stormwater:	<i>Reduction in Flood Damage (Y/N):</i> Y		Multi-benefit Y/N: Y
Multi-stakeholder project/regional collaboration	Y/N:		Y
Climate Change:	<i>Helps assess potential impacts (Y/N):</i>		
Environmental Stewardship/Public Awareness	<i>Direct Benefits:</i>		Y
Other: (<i>Describe X amount of benefit</i>)			
Project Criteria			
Please review the project against the IRWM Plan Objectives, Statewide Priorities, Program Preferences, and California Water Plan Resource Management Strategies and place a check in the box if the project meets the criteria.			
IRWM Plan Objectives Met			
Prim.	Second.		
<input checked="" type="checkbox"/>	<input type="checkbox"/>	1. Balance average annual future water demands with available future supplies to ensure sustainability throughout the Region between now and the 2035 planning horizon and beyond.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3. Maintain stability in previously overdrafted groundwater basins and reduce overdraft in groundwater basins experiencing ongoing water table declines.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7. Provide support and assistance to Disadvantaged Communities and help facilitate projects and programs that benefit those communities.	
<input type="checkbox"/>	<input type="checkbox"/>	8. Protect and restore sensitive environmental areas in coordination with land use and conservation plans to support stewardship and awareness of environmental resources.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	9. Improve stormwater management throughout the Plan area.	
<input type="checkbox"/>	<input type="checkbox"/>	2. Continue improving regional water use efficiency by implementing a portfolio of conservation actions that are regionally cost-effective.	
<input type="checkbox"/>	<input type="checkbox"/>	10. Preserve local beneficial uses as it relates to water quality of water supplied by each source, including groundwater, stormwater, surface water, imported water, and recycled water.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	11. Obtain financial assistance from outside sources to help implement this Plan across a range of project sizes during the planning horizon.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	13. Identify and establish reliable funding sources to maintain, modernize and improve water infrastructure to ensure a high quality, resilient and reliable water supply.	
<input type="checkbox"/>	<input type="checkbox"/>	14. Increase the use of recycled water in the Region while maintaining compliance with the Mojave Basin Area Judgment.	
<input type="checkbox"/>	<input type="checkbox"/>	4. Address the State policy goal of reducing reliance on the Delta by meeting water demands with alternative sources of supply during times when State Water Project (SWP) supplies are reduced or unavailable due to droughts, outages, environmental and regulatory restrictions, or other reasons.	
<input type="checkbox"/>	<input type="checkbox"/>	5. Optimize the use of the Region's water related assets to maximize available supplies to meet projected demands while mitigating against risks. Water related assets to be optimized include financial resources, groundwater storage programs, available imported water supplies, transfer and exchange opportunities, available physical infrastructure, and management policies.	
<input type="checkbox"/>	<input type="checkbox"/>	12. Improve public awareness of water supply, conservation, water quality, and environmental stewardship challenges and opportunities throughout the planning horizon.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	6. Prevent land subsidence throughout the Region.	

Statewide Priorities			
<input checked="" type="checkbox"/>	Drought Preparedness		
<input checked="" type="checkbox"/>	Use and Reuse Water More Efficiently		
<input type="checkbox"/>	Climate Change Response Actions (Adaptation to Climate Change, Reduction of Greenhouse Gas Emissions, Reduce Energy Consumption)		
<input checked="" type="checkbox"/>	Expand Environmental Stewardship		
<input checked="" type="checkbox"/>	Practice Integrated Flood Management		
<input type="checkbox"/>	Protect Surface and Groundwater Quality		
<input type="checkbox"/>	Improve Tribal Water and Natural Resources		
<input checked="" type="checkbox"/>	Ensure Equitable Distribution of Benefits		
Program Preferences			
<input checked="" type="checkbox"/>	Include Regional Projects or Programs		
<input type="checkbox"/>	Effectively Integrate Water Management Programs and Projects within a Hydrologic Region Identified in the CA Water Plan; the RWQCB Region or Subdivision; or Other Region or Sub-Region Specifically Identified by DWR		
<input type="checkbox"/>	Effectively Resolve Significant Water-Related Conflicts within or between Regions		
<input type="checkbox"/>	Contribute to Attainment of One or More of the Objectives of the CALFED Bay-Delta Program		
<input type="checkbox"/>	Address Critical Water Supply or Water Quality Needs of Disadvantaged Communities within the Region		
<input type="checkbox"/>	Effectively Integrate Water Management with Land Use Planning		
CA Water Plan - Resource Management Strategies			
<input type="checkbox"/>	Agricultural Lands Stewardship	<input type="checkbox"/>	Pollution Prevention
<input type="checkbox"/>	Agricultural Water Use Efficiency	<input type="checkbox"/>	Precipitation Enhancement
<input type="checkbox"/>	Conjunctive Management and Groundwater Storage	<input checked="" type="checkbox"/>	Recharge Areas Protection
<input type="checkbox"/>	Conveyance - Delta, Regional/Local	<input type="checkbox"/>	Recycled Municipal Water
<input type="checkbox"/>	Desalination - Brackish & Seawater	<input type="checkbox"/>	Salt & Salinity Management
<input type="checkbox"/>	Drinking Water Treatment and Distribution	<input type="checkbox"/>	Surface Storage - CALFED
<input type="checkbox"/>	Economic Incentives	<input checked="" type="checkbox"/>	Surface Storage - Regional/Local
<input type="checkbox"/>	Ecosystem Restoration	<input type="checkbox"/>	System Reoperation
<input checked="" type="checkbox"/>	Flood Risk Management	<input type="checkbox"/>	Urban Runoff Management
<input type="checkbox"/>	Forest Management	<input type="checkbox"/>	Urban Water Use Efficiency
<input checked="" type="checkbox"/>	Groundwater/Aquifer Remediation	<input type="checkbox"/>	Water Transfers
<input checked="" type="checkbox"/>	Land Use Planning & Management	<input type="checkbox"/>	Water-Dependent Recreation
<input type="checkbox"/>	Matching Water Quality to Water Use	<input checked="" type="checkbox"/>	Watershed Management

