VOLUME 1: IRWM PLAN CHAPTERS

2018 Coachella Valley Integrated Regional Water Management & Stormwater Resource Plan

FINAL
DECEMBER 2018

Plan Prepared by:
Coachella Valley Regional Water Management Group
In Collaboration with the Planning Partners

City of Coachella
Indio Water Authority
DESERT WATER
MSWD Mission Springs Water District
VALLEY SANITARY DISTRICT

Note to the Department of Water Resources (DWR) and State Water Resources Control Board (SWRCB) Reviewing this Document:

This document represents the Coachella Valley Integrated Regional Water Management (IRMW) Plan and the Region's Stormwater Resource Plan (SWRP) Functional Equivalent. The document complies with the 2016 IRWM Plan Standards issued by DWR in the 2016 IRWM Grant Program Guidelines – Volume 2 in July 2016. Similarly, this document complies with standards for SWRPs issued by the SWRCB in the 2015 SWRP Guidelines on December 15, 2015.

Generally, the Plan is structured similarly to most IRWM plans. That structure is also intuitive for a SWRP, but in order to facilitate review of the document in terms of compliance with the SWRP standards, some specific visual and content aids have been implemented throughout this Plan as follows:

1. *The icon* *is used in paragraphs and sections where specific compliance content is included for the SWRP, or in text that is highly relevant for the SWRP.*
2. ***Appendix VI.A-2** includes a specific SWRP compliance check list.*

Coachella Valley Integrated Regional Water Management Plan / Stormwater Resource Plan

December 2018

Prepared by:

Coachella Valley Regional Water Management Group

In collaboration with the Planning Partners

City of Coachella

Indio Water Authority

With Support from:

Page intentionally left blank.

Coachella Valley Regional Water Management Group

Regional Water Management Group Staff

Coachella Valley Water District
Jim Barrett, General Manager
Steve Bigley, Director of Environmental Services
Michael Nusser, Water Resources Associate
Teri Vorster, Financial Analyst

Coachella Water Authority
Berlinda Blackburn, Environmental/Regulatory Programs Manager
Maritza Martinez, Public Works Director
Cástulo Estrada, Utilities Manager

Desert Water Agency
Mark Krause, General Manager
Steve Johnson, Assistant General Manager
Ashley Metzger, Outreach & Conservation Manager
David Tate, Senior Engineer

Indio Water Authority
Brian Macy, General Manager
Adekunle Ojo, Principal Management Analyst
Sara Toyoda, Environmental Programs Coordinator

Mission Springs Water District
Arden Wallum, General Manager
John Soulliere, Conservation and Public Affairs Officer
Michael Thornton, District Engineer (contract)
Steve Ledbetter, Project Manager (contract)

Valley Sanitary District
Joseph Glowitz, General Manager
Ron Buchwald, District Engineer

Regional Water Management Group Consultant Team

Woodard & Curran

Rosalyn Prickett, Principal
Enrique Lopezcalva, Project Manager
Alexis Cahalin, Deputy Project Manager
Makena Wong, Project Planner
Hawkeye Sheene, Project Planner (stormwater)
Brenda Ponton, Project Planner (stormwater)
George Valenzuela, Project Planner
Rachel Gross, Project Planner

Coachella Valley Planning Partners

Coachella Valley Regional Water Management Group

Coachella Valley Water District
City of Coachella / Coachella Water Authority
Desert Water Agency
City of Indio / Indio Water Authority
Mission Springs Water District
Valley Sanitary District

Planning Partners

Agua Caliente Band of Cahuilla Indians
Augustine Band of Cahuilla Indians
Annenburg Trust at Sunnylands
Borrego Water District
Building Healthy Communities
Cabazon Band of Mission Indians
California Department of Water Resources
California Department of Housing and Community Development
California Rural Legal Assistance, Inc.
California State University – San Bernardino Center for Collaborative Policy
City of Cathedral City
City of Desert Hot Springs
City of Palm Desert
City of Palm Springs
City of Rancho Mirage
Clean Water Action
Clinicas de Salud
Coachella Valley Association of Governments
Coachella Valley Economic Partnership
Coachella Valley Housing Coalition
Coachella Valley Mosquito and Vector Control District
Colorado River Regional Water Quality Control Board
County of Riverside
Desert Alliance for Community Empowerment
Desert Edge Community Council
Desert Empire Homes
Desert Healthcare District
Desert Highland Gateway Health & Wellness
Desert Task Force
East Valley Housing Review Committee
El Sol Neighborhood Educational Center
Environmental Justice Coalition for Water
Friends of the Desert Mountains
Hi-Lo Desert Golf Association
Imperial Irrigation District
Leadership Counsel for Justice and Accountability
Lideres Campesinas
Loma Linda University
Mojave Water Agency
Morongo Band of Mission Indians Natural Science Collaborative of the Desert Region
Pueblo Unido Community Development Corporation
Representative from Assembly Member Garcia
Representative from Senator Jeff Stone
Representative from Assembly Member Chad Mayes
Representative from Supervisor V. Manuel Perez
Riverside County Flood Control and Water Conservation District
Riverside County Economic Development Agency
Rural Community Assistance Corporation
Salton Community Services District
San Gorgonio Pass Water Agency
Torres-Martinez Desert Cahuilla Indians
Twenty-Nine Palms Band of Mission Indians
University of California – Irvine
University of California - Riverside
U.S. Bureau of Indian Affairs
U.S. Department of Agriculture

Table of Contents

1 Introduction 1-1
1.1 Background 1-3
1.2 Regional Water Management Group 1-3
1.3 Coachella Valley IRWM Program History 1-8
1.3.1 Region Acceptance Process and Formation of the CVRWMG 1-8
1.3.2 2010 IRWM Plan 1-10
1.3.3 Proposition 84 IRWM Implementation Grant – Round 1 1-10
1.3.4 Proposition 84 IRWM Planning Grant 1-10
1.3.5 Proposition 84 IRWM DAC Outreach Efforts 1-11
1.3.6 Proposition 84 IRWM Implementation Grant – Round 2 1-11
1.3.7 Proposition 84 IRWM Implementation Grant – Round 3 (Drought Round) 1-11
1.3.8 Proposition 84 IRWM Implementation Grant – Round 4 1-12
1.3.9 Proposition 1 IRWM Planning Grant 1-12
1.3.10 Proposition 1 IRWM DAC Involvement Grant 1-12
1.4 Overview of Stakeholder Involvement 1-13
1.4.1 Stakeholder Coordination and Public Involvement 1-13
1.4.2 Planning Partners 1-14
1.4.3 DAC Outreach 1-14
1.4.4 Tribal Outreach 1-15
1.4.5 Public Outreach 1-16
1.5 2018 IRWM/SWR Plan Development 1-17

2 Region Description 2-1
2.1 Selection of Regional Boundary 2-2
2.2 Watershed and the Water Systems 2-5
2.2.1 Watershed 2-5
2.2.2 Water Systems and Distribution 2-8
2.2.3 Wastewater 2-20
2.2.4 Non-Potable Water 2-25
2.2.5 Water Conservation 2-27
2.2.6 Agricultural Water 2-30
2.2.7 Stormwater and Flood Management 2-31
2.2.8 Natural Communities and Habitats 2-36
2.3 Internal Boundaries 2-40
2.3.1 Land Use Agencies 2-40
2.4 Water Supplies and Demand 2-44
2.4.1 Water Supply 2-44
2.4.2 Water Demand 2-46
2.5 Water Quality 2-57
2.5.1 Groundwater Quality 2-57
2.5.2 Imported Water Quality 2-60
2.5.3 Surface Water Quality 2-61
2.5.4 Recycled Water Quality 2-63
2.5.5 Stormwater Quality and Water Quality Compliance 2-64
2.5.6 Stormwater Quality Concerns and Priority Pollutants 2-70

2.5.7 Drinking Water Quality *2-71*
2.6 Social and Cultural Make-up 2-72
2.6.1 Social Make-up *2-72*
2.6.2 Cultural Make-up and Diversity *2-73*
2.6.3 Economic Profile *2-73*
2.6.4 Disadvantaged Communities *2-74*
2.6.5 Tribes *2-75*
2.7 Major Water-Related Conflicts and Objectives 2-77
2.8 Climate Change 2-78
2.8.1 Legislative and Policy Context *2-80*
2.8.2 Implications of Effects of Climate Change *2-82*

3 Issues and Needs 3-1
3.1 Coachella Valley Issues and Needs 3-1
3.1.1 Water Demand *3-1*
3.1.2 Water Supply *3-3*
3.1.3 Recycled Water *3-14*
3.1.4 Stormwater *3-15*
3.1.5 Water Quality *3-16*
3.1.6 Flood Management *3-24*
3.1.7 Natural Resources *3-27*
3.1.8 Disadvantaged Communities *3-28*
3.1.9 Tribal Nations *3-30*
3.1.10 Summary of Water Management Issues *3-31*
3.2 Climate Change Issues and Needs 3-35
3.2.1 Projected Impacts and Effects of Climate Change *3-35*
3.2.2 Identification of Climate Change Vulnerabilities *3-36*
3.2.3 Vulnerability Analysis *3-44*
3.3 Technical Analysis 3-45
3.3.1 Technical Information *3-46*

4 Disadvantaged Communities 4-1
4.1 History 4-1
4.1.1 Past Outreach *4-1*
4.1.2 Previously Characterized Issues and Needs *4-3*
4.1.3 Previously Identified Projects *4-3*
4.1.4 Funded Projects in Proposition 84-Round 1 Implementation Grant *4-5*
4.2 DAC Outreach Program Activities 4-6
4.2.1 DAC Stakeholder Profiles *4-6*
4.2.2 DAC Issues Group *4-7*
4.2.3 DAC Workshops *4-9*
4.2.4 Outreach Mechanisms *4-11*
4.2.5 Coordination with Community Leaders *4-14*
4.2.6 Meetings with Tribes That Include DACs *4-15*
4.2.7 DAC Outreach Program Recommendations *4-15*
4.3 Initial DAC Characterization and Feedback 4-17
4.3.1 Initial Characterization *4-18*
4.3.2 Census Re-Evaluation and Initial Research *4-24*

4.3.3 Economic Stratigraphy of the Region *4-26*
4.3.4 DAC Outreach Survey and Mapping *4-28*
4.3.5 DAC Water Quality Evaluation *4-38*
4.3.6 DAC Needs *4-41*
4.4 DAC Projects Developed Through Outreach Efforts 4-45
4.4.1 Project Concept Development and Outreach *4-45*
4.4.2 Project Prioritization and Selection *4-46*
4.4.3 Project Descriptions *4-48*

5 Tribal Water Resources 5-1
5.1 Coachella Valley Tribes 5-1
5.1.1 Tribal Autonomy *5-2*
5.2 Developments on Tribal Lands 5-4
5.3 Tribal Nations Water Resources 5-4
5.3.1 Agua Caliente Band of Cahuilla Indians *5-4*
5.3.2 Augustine Band of Cahuilla Indians *5-5*
5.3.3 Cabazon Band of Mission Indians *5-5*
5.3.4 Santa Rosa Band of Cahuilla Indians *5-6*
5.3.5 Torres-Martinez Desert Band of Cahuilla Indians *5-6*
5.3.6 Twenty-Nine Palms Band of Mission Indians *5-7*
5.4 Status of Water Management on Tribal Lands 5-8
5.4.1 Tribal Water Resources Concerns – Status of Discussions *5-8*
5.4.2 Tribal Water Quality Monitoring Activities *5-9*
5.5 Tribal Participation in Water Resources Planning 5-9
5.5.1 California Water Plan *5-10*
5.5.2 Coachella Valley IRWM Program *5-10*
5.5.3 Local Water Management Plans *5-11*

6 Objectives 6-1
6.1 Goals and Objectives 6-2
6.1.1 Determining Objectives *6-4*
6.1.2 Describing the Process *6-9*
6.1.3 Goals, Objectives, and the Planning Hierarchy *6-11*
6.2 Prioritizing Objectives 6-23
6.3 Stormwater Resource Plan Benefits Prioritization 6-25

7 Stakeholder Involvement 7-1
7.1 Establishment of the IRWM Program and SWR Planning Process 7-2
7.2 Structure and Organization 7-3
7.2.1 Group Membership and Participation *7-5*
7.3 Effective Decision-Making 7-22
7.3.1 CVRWMG Decision Making Process *7-22*
7.4 Balanced Access and Opportunity for Participation 7-23
7.4.1 Outreach Activities *7-23*
7.4.2 Effective Communication – Both Internal and External to Region *7-25*
7.4.3 Open Door Policy *7-26*
7.5 Disadvantaged Communities Outreach 7-27
7.5.1 Outreach Activities *7-28*

7.6 Tribal Outreach and Coordination 7-30
7.6.1 Outreach Activities 7-31
7.7 IRWM/SWR Plan Adoption 7-32
7.8 Long-Term Implementation of IRWM/SWR Plan 7-35
7.8.1 Updating or Amending the IRWM/SWR Plan 7-36

8 Resource Management Strategies 8-1
8.1 IRWM/Stormwater Resource Integration Approach 8-1
8.1.1 Stakeholder/Institutional Integration 8-1
8.1.2 Resource Integration 8-2
8.1.3 Project Integration 8-2
8.1.4 Strategy Integration 8-2
8.2 Resource Management Strategies 8-3
8.2.1 Resource Management Strategies 8-3
8.2.2 Objectives Assessment 8-4
8.3 Documenting the Process 8-7
8.4 Overview of Resource Management Strategies 8-7
8.4.1 Reduce Water Demand 8-8
8.4.2 Improve Operational Efficiency and Transfers 8-11
8.4.3 Increase Water Supply 8-16
8.4.4 Improve Water Quality 8-22
8.4.5 Improve Flood Management 8-31
8.4.6 Practice Resources Stewardship 8-33
8.4.7 People & Water 8-38
8.4.8 Other Strategies 8-43
8.5 Adapting Resource Management Strategies to Climate Change 8-46

9 Project Evaluation and Prioritization 9-1
9.1 IRWM Regional Priorities 9-1
9.2 IRWM Project Selection Process 9-5
9.2.1 Project Submittal Process 9-5
9.2.2 IRWM Project Review and Prioritization Process 9-7
9.2.3 IRWM Project Selection Factors 9-15
9.3 List of Selected IRWM Projects 9-23
9.4 IRWM Grant Funding Proposal Prioritization 9-24
9.5 Stormwater Project Evaluation and Prioritization 9-25
9.5.1 Stormwater Priorities 9-26
9.5.2 Stormwater Multiple Benefits and Associated Metrics 9-27
9.5.3 Stormwater Resource Plan Project Prioritization Process 9-29
9.5.4 Integrated Metrics-Based Analysis of Project Benefits 9-33

10 Agency Coordination 10-1
10.1 Agency Coordination 10-1
10.1.1 Coordination of Activities within IRWM Region 10-1
10.1.2 Neighboring and/or Overlapping IRWM/SWR Efforts 10-2
10.1.3 Coordination with Tribal, Federal, State, and Local Agencies 10-8
10.1.4 Coordination for the SWRP 10-12
10.2 Relation to Local Water Planning 10-15

10.2.1 Water Supply Planning and Groundwater Management *10-16*
10.2.2 Non-Potable Water Supplies *10-22*
10.2.3 Planning Efforts to Offset Climate Change Impacts to Water Supply *10-24*
10.2.4 Additional Water Planning Efforts *10-25*
10.2.5 Technical Evaluations for the IRWM/SWR Plan *10-28*
10.2.6 Individual Planning Efforts by Agency *10-36*
10.3 Relation to Local Land Use Planning 10-41
10.3.1 Linkages between Water Management and Land Use Planning *10-41*
10.3.2 Current Relationships Between Water Managers and Land Use Planners *10-44*
10.3.3 Future Efforts to Establish Proactive Relationships *10-45*

11 Framework for Implementation 11-1
11.1 Impacts and Benefits 11-1
11.1.1 Overview of Benefits *11-1*
11.1.2 Overview of Impacts *11-15*
11.1.3 Benefits and Impacts of Plan Implementation *11-21*
11.2 Climate Change Mitigation/GHG Reduction 11-23
11.3 Data Management 11-23
11.3.1 Overview of Data Needs *11-25*
11.3.2 Data Collection Techniques *11-29*
11.3.3 Stakeholder Contributions *11-30*
11.3.4 Responsible Entity *11-30*
11.3.5 Quality Assurance/Quality Control (QA/QC) Measures *11-30*
11.3.6 Regional Data Sharing *11-30*
11.3.7 Statewide Data Sharing *11-31*
11.4 Plan Performance and Monitoring 11-32
11.4.1 Plan Performance *11-33*
11.4.2 Project-Specific Monitoring Plans *11-34*
11.5 Finance 11-35
11.5.1 Sources and Certainty of Funding *11-35*
11.6 SWRP Implementation 11-45
11.6.1 Procedure for Updating the SWRP *11-46*

12 References 12-1
Introduction 12-1
Region Description 12-1
Issues and Needs 12-4
Disadvantaged Communities 12-6
Tribal Water Resources 12-7
Objectives 12-8
Resource Management Strategies 12-9
Project Evaluation 12-10
Agency Coordination 12-10
Framework for Implementation 12-12

Appendices

Volume I

Appendix VI-A.1	**IRWM Plan Standards Review**
Appendix VI-A.2	**SWRP Checklist and Self-Certification**
Appendix VI-B	**Data and Technical Sources, Analysis, and Use in 2018 IRWM/SWR Plan**
Appendix VI-C	**Memorandum of Understanding**
Appendix VI-D	**Public Meeting Notes**
Appendix VI-E	**Public Outreach and Involvement Plan & Disadvantaged Communities Outreach Plan**
Appendix VI-F	**Comments on the Public Draft 2018 IRWM/SWR Plan**
Appendix VI-G	**Work Plan for the Coachella Valley Groundwater Basin's Salt & Nutrient Management Planning Strategy**
Appendix VI-H	**Coachella Valley IRWM Program Project List and SWRP Project List (as of February 23, 2018)**
Appendix VI-I	**Integrated Flood Management Planning Study**
Appendix VI-J	**Evaluation of Valley-Wide Groundwater Monitoring Programs**

Volume II

Appendix VII-A	**Disadvantaged Communities Tapestry Mapping**
Appendix VII-B	**Disadvantaged Communities Mapping and Characterization Project Report**
Appendix VII-C	**Disadvantaged Communities Water Quality Evaluation & Residential Groundwater Treatment Program**
Appendix VII-D	**Participation in Integrated Regional Water Management**
Appendix VII-E	**Disadvantaged Community Workshop Materials**
Appendix VII-F	**Disadvantaged Communities Project 1 – Educational Materials**
Appendix VII-G	**Public Utility Connection Opportunities in Disadvantaged Communities**
Appendix VII-H	**Regional Program for Septic System Rehabilitation**

List of Figures

Figure 1-1: Coachella Valley IRWM Region and SWR Planning Area 1-6
Figure 1-2: Coachella Valley Regional Water Management Group 1-7
Figure 1-3: IRWM Program Milestones, 2008-2018 1-8
Figure 1-4: IRWM/SWR Plan Framework 1-20

Figure 2-1: Coachella Valley IRWM Region and SWR Planning Area 2-4
Figure 2-2: Whitewater River Watershed and Sub-watersheds 2-7
Figure 2-3: Groundwater Basins and Recharge Areas 2-12
Figure 2-4: Statewide Imported Water Systems 2-19
Figure 2-5: Wastewater and Recycled Water 2-22
Figure 2-6: Municipalities 2-33
Figure 2-7: Federal and State Mapped Flood Zones 2-34
Figure 2-8: Natural Communities 2-38
Figure 2-9: Conservation Areas 2-39
Figure 2-10: Population of Coachella Valley Cities 2-41
Figure 2-11: Land Use 2-43
Figure 2-12: Total Projected Potable Water Use with Conservation 2-51
Figure 2-13: Projected Potable vs. Non-Potable Water Use[1] 2-52
Figure 2-14: Total Historical Water Demands by Type of Use in CVWD Service Area 2-56
Figure 2-15: Projected Water Demands by Type of Use in Coachella Valley IRWM Region 2-56
Figure 2-16: Tribal Lands 2-76
Figure 2-17: Water Availability Under Current Runoff Conditions 2-83
Figure 2-18: Water Availability Under Projected Runoff Conditions 2-83

Figure 3-1: Total Projected CVRWMG Agency Potable Water Demand with Conservation[1] 3-2
Figure 3-2: Total Water Demand Projections for Coachella Valley IRWM Region 3-3
Figure 3-3: Land Subsidence Study Areas 3-7
Figure 3-4: CVRWMG Regional Water Conservation Program 3-12
Figure 3-5: Coachella Valley Groundwater Basin Perched Zone 3-18
Figure 3-6: Federal and State Mapped Flood Zones 3-26

Figure 4-1: DAC Outreach Materials: Contact Update Form and Letter 4-7
Figure 4-2: Screenshot of the DAC Outreach Project portion of the IRWM Website 4-12
Figure 4-3: Bilingual Flyers Distributed for Workshops 4-13
Figure 4-4: Bilingual Door Hangers Distributed During Survey Process 4-14
Figure 4-5: 2010 IRWM Plan Disadvantaged Communities (2000 Census) 4-19
Figure 4-6: 2010 IRWM Plan Disadvantaged Communities (Claritas Data) 4-20
Figure 4-7: Coachella Valley Disadvantaged Communities (2010 Census) 4-21
Figure 4-8: Coachella Valley Disadvantaged Communities (2012-2016 ACS 5-Year Estimate) 4-22
Figure 4-9: Coachella Valley Disadvantaged Communities Focus Areas 4-23
Figure 4-10: Location of Mobile Home Parks 4-31
Figure 4-11: Dwelling Type for Survey Respondents 4-32
Figure 4-12: Perceived Water Supply Type 4-33
Figure 4-13: Perceived Tap Water Quality 4-34
Figure 4-14: Perceived Wastewater System Types 4-35

Figure 4-15: Perceived Flooding **4-36**
Figure 4-16: Areas of Concern **4-40**

Figure 5-1: Tribal Lands **5-3**

Figure 6-1: Stormwater Benefits Prioritization – Percentage by Category **6-27**
Figure 6-2: Stormwater Benefits Prioritization **6-28**

Figure 7-1: Decision Making Structure **7-4**
Figure 7-2: Information Flow Structure **7-5**
Figure 7-3: Timeline for 2018 Coachella Valley IRWM/SWR Plan **7-34**

Figure 9-1: CVRWMG Website and Project Database **9-6**
Figure 9-2: Prioritization Process Overview **9-8**
Figure 9-3: SWR Project Eligibility Flow Chart **9-30**
Figure 9-4: SWR Projects with Water Quality Benefits **9-37**
Figure 9-5: SWR Projects with Water Supply Benefits **9-48**
Figure 9-6: SWR Projects with Flood Management Benefits **9-43**
Figure 9-7: SWR Projects with Environmental Benefits **9-46**
Figure 9-8: SWR Projects with Community Benefits **9-49**

Figure 10-1: Adjacent IRWM Efforts **10-7**
Figure 10-2: Groundwater Sustainability Agencies **10-21**

Figure 11-1: IVAN Database **11-24**
Figure 11-2: Project Timeline **11-45**
Figure 11-3: SWRP Implementation and Data Refinement Timeline **11-46**

List of Tables

Table 1-1: Organization of IRWM/SWR Plan in Relation to *2016 IRWM Plan Standards* 1-18
Table 1-2: Organization of IRWM/SWR Plan in Relation to *2015 SWRP Guidelines* Requirements 1-19

Table 2-1: Groundwater Subbasins and Sub-Areas in the Coachella Valley Groundwater Basin[1] . 2-9
Table 2-2: Groundwater Subbasins and Corresponding Recharge Areas 2-14
Table 2-3: SWP Table A Allotments in Acre-Feet 2-17
Table 2-4: Summary of Wastewater Treatment Plants 2-24
Table 2-5: Summary of Water Reclamation Plant Capacity 2-27
Table 2-6: Recycled Water Use 2-27
Table 2-7: Coachella Valley Cities 2-41
Table 2-8: Summary of Coachella Valley Non-Groundwater Supply Sources 2-45
Table 2-9: Total 2017 Urban Water Supply for the CVRWMG Agencies 2-45
Table 2-10: Total Projected Urban Water Supply for the CVRWMG Agencies 2-46
Table 2-11: Water Demand for the Coachella Valley IRWM Region 2-47
Table 2-12: 2017 CVRWMG Agency Demand 2-48
Table 2-13: Total CVRWMG Agency Projected Demands 2-49
Table 2-14: Total Projected CVRWMG Agency Potable Water Use with Conservation[1] 2-50
Table 2-15: Total Projected CVRWMG Agency Non-Potable Water Use with Conservation[1] 2-51
Table 2-16: Monthly Service or Meter Charges 2-53
Table 2-17: 2017 Tiered Agency Water Rates 2-54
Table 2-18: Water Use Tiers 2-54
Table 2-19: Quality of Water Sources 2-60
Table 2-20: Beneficial Uses of Surface Waters in the Coachella Valley 2-62
Table 2-21: 303(d) Listed Water Bodies 2-63
Table 2-22: Expected TMDL Completion Dates 2-69
Table 2-23: Bacterial Indicator Water Quality Objectives 2-69

Table 3-1: Best Management Practices Implemented by CVRWMG Agencies 3-13
Table 3-2: Summary of Significant Water Management Issues in Coachella Valley 3-32
Table 3-3: Impacts and Effects of Climate Change on Region by 2050[1] 3-36
Table 3-4: Climate Change Vulnerability Indicator Questions 3-38
Table 3-5: Prioritized Climate Change Vulnerability Issues 3-44

Table 4-1: DAC Issues Group Participants 4-8
Table 4-2: Recommendations to Improve DAC Participation in IRWM Planning 4-16
Table 4-3: Summary of DAC Outreach Program Recommendations 4-17
Table 4-4: Focus Area Tapestry Segments 4-26
Table 4-5: Focus Area Select Statistics 4-28
Table 4-6: Initial DAC Project Concepts 4-46

Table 5-1: Tribal Nation Reservations within the Coachella Valley IRWM Region 5-2

Table 6-1: Climate Change Requirement and Corresponding Plan Objective 6-4
Table 6-2: Coachella Valley IRWM/SWR Plan Goals, Objectives, and Targets 6-13
Table 6-3: Weighted IRWM Objectives Based on Prioritization 6-24
Table 6-4: Stormwater Benefits Prioritization 6-26

Table 7-1: Summary of Roles and Responsibilities 7-9
Table 7-2: Meeting Structure Summary 7-9
Table 7-3: Coachella Valley Planning Partners 7-12
Table 7-4: Native American Tribes Issues Group Participants 7-17
Table 7-5: DAC Issues Group Participants 7-18
Table 7-6: Salt and Nutrient Management Plan Issues Group 7-18
Table 7-7: Integrated Flood Management Issues Group 7-19
Table 7-8: Public Workshops Held for Coachella Valley IRWM/SWR Plan 7-20
Table 7-9: DAC Workshops Held for Coachella Valley IRWM Program 7-29
Table 7-10: Coachella Valley IRWM/SWR Stakeholder List 7-37

Table 8-1: All Resource Management Strategies Considered 8-4
Table 8-2: Resource Management Strategies that Achieve IRWM/SWR Plan Objectives 8-5
Table 8-3: Climate Change Management Strategies 8-47
Table 8-4: Sample Climate Change Strategy Performance Measures/Metrics 8-50

Table 9-1: Project Prioritization Criteria and Relationship to IRWM Goals and Objectives 9-11
Table 9-2: Project Scoring Guide 9-14
Table 9-3: Statewide Priorities 9-18
Table 9-4: SWR Priorities and Related Regional IRWM Priorities and Objectives 9-26
Table 9-5: Summary of SWRP Main Benefits and Metrics 9-28
Table 9-6: Summary of SWRP Additional Benefits and Metrics 9-28
Table 9-7: Coachella Valley SWR Project Scoring Guide 9-31
Table 9-8: Coachella Valley SWR Project Tiered Ranking 9-32
Table 9-9: Stormwater Projects with Multiple Benefits 9-34
Table 9-10: Water Quality Benefit Project Counts 9-35
Table 9-11: Water Quality Quantified Benefits 9-36
Table 9-12: Water Supply Benefit Project Counts 9-38
Table 9-13: Water Supply Quantified Benefits 9-38
Table 9-14: Flood Management Benefit Project Counts 9-41
Table 9-15: Flood Management Quantified Benefits 9-42
Table 9-16: Environmental Benefit Project Counts 9-44
Table 9-17: Environmental Quantified Benefits 9-45
Table 9-18: Community Benefit Project Counts 9-47
Table 9-19: Community Quantified Benefits 9-48

Table 10-1: Agency Coordination for Stormwater Resource Planning 10-13
Table 10-2: Identified Constituents of Concern within Areas of Concern 10-30
Table 10-3: Local Water Plans and Studies in Coachella Valley IRWM Region 10-39

Table 11-1: Summary of Potential Long-Term Benefits for Proposed Projects 11-4
Table 11-2: Summary of Potential Long-Term Impacts for Proposed Projects 11-18

Table 11-3: Required Contents of Project-Specific Monitoring Plans.....11-35
Table 11-4: IRWM Project Potential Funding Mechanisms.....11-38
Table 11-5: SWRP Project Funding Needs.....11-44
Table 11-6: IRWM/SWR Plan Adoption and Implementation Schedule.....11-44

Acronyms

AB	Assembly Bill
AB 32	Assembly Bill 32
AD	Assessment district
ACS	American Communities Survey
AF	Acre-feet
AFY	Acre feet per year
AOBs	Areas of Benefits
Basin Plan	Water Quality Control Plan for Plan for the Colorado River Basin – Region 7
BIA	U.S. Bureau of Indian Affairs
BLM	U.S. Bureau of Land Management
BMP	Best management practice
BMWD	Berrenda Mesa Water District
BOD	Biological Oxygen Demand
BPO	Basin Plan Objective
BWD	Borrego Water District
CA	California
CalEPA	California Environmental Protection Agency
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CAS	California Climate Adaptation Strategy
CASGEM	California Statewide Groundwater Elevation Monitoring
CAT	Climate Action Team
CalWARN	California Water and Wastewater Agency Response Network
CDC	California Department of Conservation
CDFW	California Department of Fish and Wildlife
CDPH	California Department of Public Health
CEC	California Energy Commission
CEDEN	California Environmental Data Exchange Network
CEIC	California Environmental Information Catalog
CEQA	California Environmental Quality Act
CERES	California Environmental Resources Evaluation System
CFS	cubic feet per second
CIP	Capital Improvement Program
CMP	Consolidated Monitoring Program
CNRA	California Natural Resources Agency
CO_2e	CO_2 equivalents
COD	California Oxygen Demand
County	County of Riverside
Coachella Canal	Coachella branch of the All-American Canal
CRA	Colorado River Aqueduct
CRFA	Colorado River Funding Area
CRLA	California Rural Legal Assistance Inc.
CSD	City of Coachella Sanitary District
CUWCC	California Urban Water Conservation Council
CVAG	Coachella Valley Association of Governments
CVCC	Coachella Valley Conservation Commission
CVCTA	Coachella Valley Community Trails Alliance
CVMC	Coachella Valley Mountains Conservancy
CVMSHCP	Coachella Valley Multiple Species Habitat Conservation Plan

CVRCD	Coachella Valley Resource Conservation District
CVRWMG	Coachella Valley Regional Water Management Group
CVSC	Coachella Valley Stormwater Channel
CVWD	Coachella Valley Water District
CVWMR	Coachella Valley Water Management Region
CVWMP	Coachella Valley Water Management Plan
CWA	Coachella Water Authority
CWEP	California Water Efficiency Partnership
CWMP	Cooperative Watershed Management Program
CWP	California Water Plan
CWSRF	Clean Water State Revolving Fund
DAC	Disadvantaged communities
DACE	Desert Alliance for Community Empowerment
DACI	Disadvantaged Community Involvement
DDT	Dichlorodiphenyltrichloroethane
DDW	Department of Drinking Water
DEH	Riverside County Department of Environmental Health
Delta	Sacramento-San Joaquin Delta
Desert Hot Springs*	Local/regional name for DWR-designated Desert Hot Springs Groundwater Basin (7-21.03)
DMMs	Demand Management Measures
DMS	Data Management System
DO	Dissolved Oxygen
DWA	Desert Water Agency
DWR	California Department of Water Resources
DWSRF	Drinking Water State Revolving Fund
EDA	Economic Development Agency
EIR	Environmental Impact Report
EJ	Environmental justice
EJCW	Environmental Justice Coalition for Water
EO	Executive Order
EOP	Emergency Operations Plan
ESRI	Environmental Systems Research Institute
EQIP	Environmental Quality Incentives Program
FEMA	Federal Emergency Management Agency
FPCP	Flood Protection Corridor Program
GAMA	Groundwater Ambient Monitoring and Assessment program
Garnet Hill*	Local/regional name for portion of DWR-designated Indio Groundwater Basin (7-21.01)
GC	General Council
GHG	Greenhouse gas
GIS	Geographic Information System
gpcd	Gallons per capita per day
Gpm	Gallons per minute
GPS	Global Positioning System
GRF	Groundwater recharge facility
GSP	Groundwater Sustainability Plan
HA	Hydrologic Area
HCF	Hundred cubic feet
HOA	Home Owners Association
HAS	Hydrologic Sub-Area
IC/ID	Illicit connection/illicit discharge
IFM	Integrated Flood Management Study

ID	Improvement District
IID	Imperial Irrigation District
Indio/Whitewater River*	Local/Regional name for a portion of DWR-designated Indio Groundwater Basin (7-21.01)
IOPP	Inadvertent Overrun and Payback Policy
IPCC	Intergovernmental Panel on Climate Change
IRWM	Integrated Regional Water Management
ISRF	Infrastructure State Revolving Fund
IWA	Indio Water Authority
IWIS	Integrated Water Resources Information System
JPA	Joint Powers Authority
Leadership Counsel	Leadership Counsel for Justice and Accountability
LGA	Local Groundwater Assistance program
LID	Low impact development
MBAs	methyl blue active substances
MCL	Maximum containment level
MG	Million gallons
mg/L	Milligrams per liter
mgd	Million gallons per day
MHI	Median Household Income
Mission Creek*	Local/regional name for portion of DWR-designated Mission Creek Groundwater Basin (7-21.02)
MOU	Memorandum of Understanding
MPN	Most probable number
MS4	Municipal Separate Storm Sewer System
MSWD	Mission Springs Water District
MSHCP	Multiple Species Habitat Conservation Plan
MWA	Mojave Water Agency
MWC	Myoma Dunes Mutual Water Company
MWD	Metropolitan Water District of Southern California
NCCP	Natural Community Conservation Plan
NFIP	National Flood Insurance Program
NGO	Non-governmental organization
NIMS	National Incident Management System
NPDES	National Pollutants Discharge Elimination System
NRCS	Natural Resource Conservation Service
OES	Office of Emergency Services
OPR	Governor's Office of Planning and Research
pCi/L	Picocuries per liter
PCBs	polychlorinated biphenyls
Plan	Coachella Valley Integrated Regional Water Management Plan
POU	Point-of-use treatment
ppb	Parts per billion
ppm	Parts per million
PUC	Pueblo Unido Community Development Corporation
QAAP	Quality Assurance Project Plan
QSA	Quantification Settlement Agreement
RAC	Replenishment Assessment Charges
RAP	Region Acceptance Process
RCFCWCD	Riverside County Flood Control and Water Conservation District
RCAC	Rural Community Assistance Corporation
RCOA	Riverside County Operational Area

RECI	Water Contact Recreation
RECII	Water Non-Contact Recreation
Recycled water	Recycled municipal wastewater
Region	Coachella Valley IRWM Region
Regional Boundary	Coachella Valley IRWM Regional Boundary
RFP	Request for Proposals
RHNA	Regional Housing Needs Assessment
RMS	Resource Management Strategy
RWMG	Regional Water Management Group
RWQCB	Regional Water Quality Control Board
SAWPA	Santa Ana Watershed Project Authority
SB	Senate Bill
SB 97	Senate Bill 97
SCAG	Southern California Association of Governments
SCSD	Salton Community Services District
SDSRF	Safe Drinking Water State Revolving Fund
SEMS	California Standardized Emergency Management System
SFHSs	Special Flood Hazard Areas
SGMA	Sustainable Groundwater Management Act
SGPWA	San Gorgonio Pass Water Agency
SNMP	Salt and Nutrient Management Plan
SPEIR	Subsequent Program Environmental Impact Report
SRF	State Revolving Fund
SSA	Salton Sea Authority
SSMP	Salton Sea Management Program
STAT	Short Term Arsenic Treatment Project
State	State of California
STORET	Storage and Retrieval Data Warehouse
SWAMP	Surface Water Ambient Monitoring Program
SWGP	Storm Water Grant Program
SWMP	Stormwater Management Plan
SWP	State Water Project
SWPPP	Storm Water Pollution Prevention Plan
SWQIS	Statewide Database System
SWR	Stormwater Resources Plan
SWRCB	State Water Resources Control Board
SWRP	Stormwater Resource Plan
TBC	Tribal Business Committee
TDS	Total Dissolved Solids
TMDL	Total Maximum Daily Load
TSS	Total Suspended Solids
µg/L	Micrograms per liter
USACE	U.S. Army Corps of Engineers
USBIA	U.S. Bureau of Indian Affairs
USBR	U.S. Bureau of Reclamation
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USFS	U.S. Forest Service
USGS	U.S. Geological Survey
UWMP	Urban Water Management Plan
Valley	Coachella Valley Water Management Region

VSD	Valley Sanitation District
WARN	California Worker Adjustment and Retraining Notification
WDL	Water Data Library
WEP	Water and Environmental Programs
West Salton Sea*	Local/regional name for DWR-designated West Salton Sea Groundwater Basin (7-22)
WET-CAT	Climate Action Team, Water-Energy group
WLA	wasteload allocation
WMP	Water Management Plan
WMWC	Whitewater Mutual Water Company
WQMP	Whitewater River Region Water Quality Management Plan
WQOs	Water Quality Objectives
WRF	Water Reclamation Facility
WRP	Water reclamation plant
WRCC	Sonoran Desert Western Region Climate Center
WRSC	Whitewater River Stormwater Channel
WSA	Water Supply Assessments
WVWRF	West Valley Water Reclamation Facility
WWTP	wastewater treatment plants

*Groundwater basin names and designations – DWR Bulletin 118 and Coachella Valley IRWM Plan (local and regional names used by CVRWMG agencies):

<table>
<tr><th colspan="2">DWR Bulletin 118</th><th colspan="3">Coachella Valley IRWM/SWR Plan</th></tr>
<tr><th>Basin Number</th><th>Basin Name</th><th>Basin Name</th><th colspan="2">Subbasin Name</th></tr>
<tr><td rowspan="7">7-21.01</td><td rowspan="7">Indio</td><td rowspan="6">Whitewater River</td><td rowspan="4">West Whitewater River Subbasin Management Area or Area of Benefit</td><td>Palm Springs</td></tr>
<tr><td>Indio Hills</td></tr>
<tr><td>Thousand Palms</td></tr>
<tr><td>Thermal (West Coachella Valley)[1]</td></tr>
<tr><td rowspan="3">East Whitewater River Subbasin Management Area or Area of Benefit</td><td>Thermal (East Coachella Valley)[1]</td></tr>
<tr><td>Oasis</td></tr>
<tr><td>Barton Canyon</td></tr>
<tr><td>Garnet Hill</td><td colspan="2">Garnet Hill</td></tr>
<tr><td>7-21.02</td><td>Mission Creek</td><td>Mission Creek</td><td colspan="2">Mission Creek</td></tr>
<tr><td rowspan="4">7-21.03</td><td rowspan="4">Desert Hot Springs</td><td rowspan="4">Desert Hot Springs</td><td colspan="2">Miracle Hill</td></tr>
<tr><td colspan="2">Sky Valley</td></tr>
<tr><td colspan="2">Fargo Canyon</td></tr>
<tr><td colspan="2">Mecca Hills</td></tr>
<tr><td>7-22</td><td>West Salton Sea</td><td>West Salton Sea</td><td colspan="2">West Salton Sea</td></tr>
</table>

1. Thermal Subarea is located in both the West and East Whitewater River Subbasins, which are divided along the Eastern Coachella Valley-Western Coachella Valley division of the Coachella Valley (see **Figure 2-1**)

1 Introduction

This Coachella Valley Integrated Regional Water Management (IRWM)/Stormwater Resource (SWR) Plan serves as a combined plan which addresses the requirements of the California Department of Water Resources (DWR) *Proposition 1 2016 IRWM Grant Program Guidelines* and the *State Water Resources Control Board (SWRCB) 2015 Stormwater Resource Plan (SWRP) Guidelines*. The IRWM Plan and SWRP has been combined into one document because of the regional approach, overlap of stakeholder interests and existing stakeholder network, and similar grants and project scoring processes for the two plans. Refer to the IRWM Plan Standards Review in **Appendix VI-A.1** and SWRP Requirements Checklist in **Appendix VI-A.2**. A note to agency reviewers has been included on the previous page.

What is IRWM?

The IRWM program is a local water resources management approach directed by DWR. It is aimed at securing long-term water supply reliability within California by first recognizing the inter-connectivity of water supplies, and then encouraging the development and implementation of projects that yield combined benefits for water supplies, water quality, and natural resources. The *California Water Plan Update 2009* (Volume 1, Chapter 7 Objective 1: Expand Integrated Regional Water Management) states:

"The broad purpose of IRWM is to promote a regional planning and implementation framework to comprehensively address water supply, quality, flood, and ecosystem challenges and to implement integrated solutions through a collaborative multi-partner process that includes water managers, tribes, non-governmental organizations, State, federal, and local governments, and disadvantaged communities."

What is SWRP?

SWRP development is directed by the SWRCB and focuses on stormwater and dry weather runoff capture. Following the passage of Senate Bill (SB) 985, any stormwater or dry weather runoff capture project receiving funding from any bond approved after January 1, 2014 must be included in a SWRP. The intent of SB 985 is to encourage the use of stormwater and dry weather runoff as a resource to improve water quality, reduce localized flooding, and increase water supplies for beneficial uses and the environment. The SWRCB provides guidance for the development of SWRP's through the *SWRCB 2015 SWRP Guidelines* and manages the associated Stormwater Grant Program (SWGP).

Similar to IRWM planning, SWRP's characterize water supply and water quality conditions at a watershed-scale, identify planning area objectives and priorities, prioritize multibenefit projects to meet planning area objectives, and involve continued stakeholder collaboration and coordination. While SWRP's focus on stormwater and dry weather runoff capture, both IRWM and SWR planning efforts aim to encourage implementation of multi-benefit projects that will improve water quality, reduce local flooding, and increase water supplies in a

watershed. Because of the similarities between these specific planning efforts in the Coachella Valley IRWM Region (Region), the Coachella Valley Regional Water Management Group (CVRWMG) chose to develop a SWRP functional equivalent through this Coachella Valley IRWM/SWR Plan.

The symbol to the left is used throughout the IRWM/SWR Plan to identify SWRP requirements per the *SWRCB 2015 SWRP Guidelines* and/or text that is significantly relevant to the SWRP functional equivalent. **Appendix VI-A.2** provides a cross-walk of the SWRP checklist and where each requirement is located in the 2018 IRWM/SWR Plan.

What Does This Plan Do?

The Coachella Valley IRWM/SWR Plan presents an integrated regional approach for addressing water management issues through a process that identifies and involves water management stakeholders from the Coachella Valley. The Coachella Valley IRWM/SWR Plan:

- Defines the Region and water systems,
- Identifies regional water management goals and objectives,
- Establishes objectives and measurable targets for the Region,
- Identifies water management issues and needs,
- Identifies stakeholder involvement and agency coordination processes,
- Identifies and evaluates resource management strategies,
- Assesses the integration of projects based on objectives,
- Establishes an IRWM and SWRP project evaluation and prioritization process based on regional priorities, and
- Establishes a framework for implementation of projects.

While the Plan presents an opportunity to collaborate at a regional level, it does not duplicate previous planning efforts throughout the region, but rather synthesizes them and allows stakeholders to collaborate more effectively.

According to §15262 of the California Environmental Quality Act (CEQA) Guidelines, this IRWM/SWR Plan qualifies as a planning study that identifies projects and programs for possible future actions but does not have a legally binding effect on the participating agencies. As such, programmatic environmental analysis under CEQA is not required. Similarly, the IRWM/SWR Plan is categorically exempt from CEQA pursuant to §15306 (Class 6) because the Plan consists of basic data and information collection and evaluation of water management activities. Prior to construction or implementation of all projects listed within this Plan, environmental review will be performed in accordance with CEQA.

1.1 Background

*This section complies with the **Watershed Identification** requirements for the SWRP by identifying and describing watershed and subwatershed(s) for stormwater resource planning.*

The Region is chiefly the same as the Whitewater River Watershed, also known as the Coachella Valley (see **Figure 1-1**). The Coachella Valley IRWM Regional Boundary (Regional Boundary) serves as the SWR planning area boundary, as identified in **Figure 1-1**. The Region is about 65 miles long on a northwest-southeast trending axis and covers approximately 1,420 square miles. The area is drained primarily by the Whitewater River that flows southward to the Salton Sea at an elevation of approximately 220 feet below sea level. The Region's watershed boundaries to the north and northwest are the rugged and barren mountain ranges of the Colorado Desert, the San Bernardino Mountains, Little San Bernardino Mountains, and Mecca Hills. The watershed boundaries to the east and south are Mortmar, the Salton Sea, and Travertine Rock. This eastern boundary is defined by the watershed that encloses all surface drainage emptying into the north end of the Salton Sea. The Salton Sea is not within the IRWM Region. The southernmost boundary turns west from the Salton Sea and follows the Salton Community Services District (SCSD) political boundary to the watershed divide. The watershed boundaries to the south and west are the high, precipitous Santa Rosa Mountains and San Jacinto Mountains, which create an effective barrier against the easterly moving coastal storms. The western boundary is composed of a political line that separates Desert Water Agency (DWA) and Mission Springs Water District (MSWD) from San Gorgonio Pass Water Agency (SGPWA). The Whitewater River Watershed and sub-watersheds within the planning area are described in more detail in *Chapter 2 Region Description, Section 2.2 Watershed and the Water Systems*.

The Region currently faces multiple potential water supply and quality issues, including increasing water demands, groundwater overdraft, stormwater capture and management, groundwater quality, surface water quality (particularly in the last 17 miles of the stormwater channel), flooding, and regulatory constraints that may be associated with any of these issues (see *Chapter 3 Issues and Needs* for a more detailed description of each issue). Thus, the IRWM/SWR Plan promotes collaborative water management efforts and outlines strategies for addressing the current water management issues within the Coachella Valley.

1.2 Regional Water Management Group

*This section complies with the **Watershed Identification** requirements for the SWRP by describing internal boundaries within the watershed and local entities that provide potable water supplies and estimated volume of potable water provided. This section also complies with the **Organization, Coordination, Collaboration** requirements by describing the existing integrated regional water management groups implementing an integrated regional water management plan and the coordination of existing local governmental agencies.*

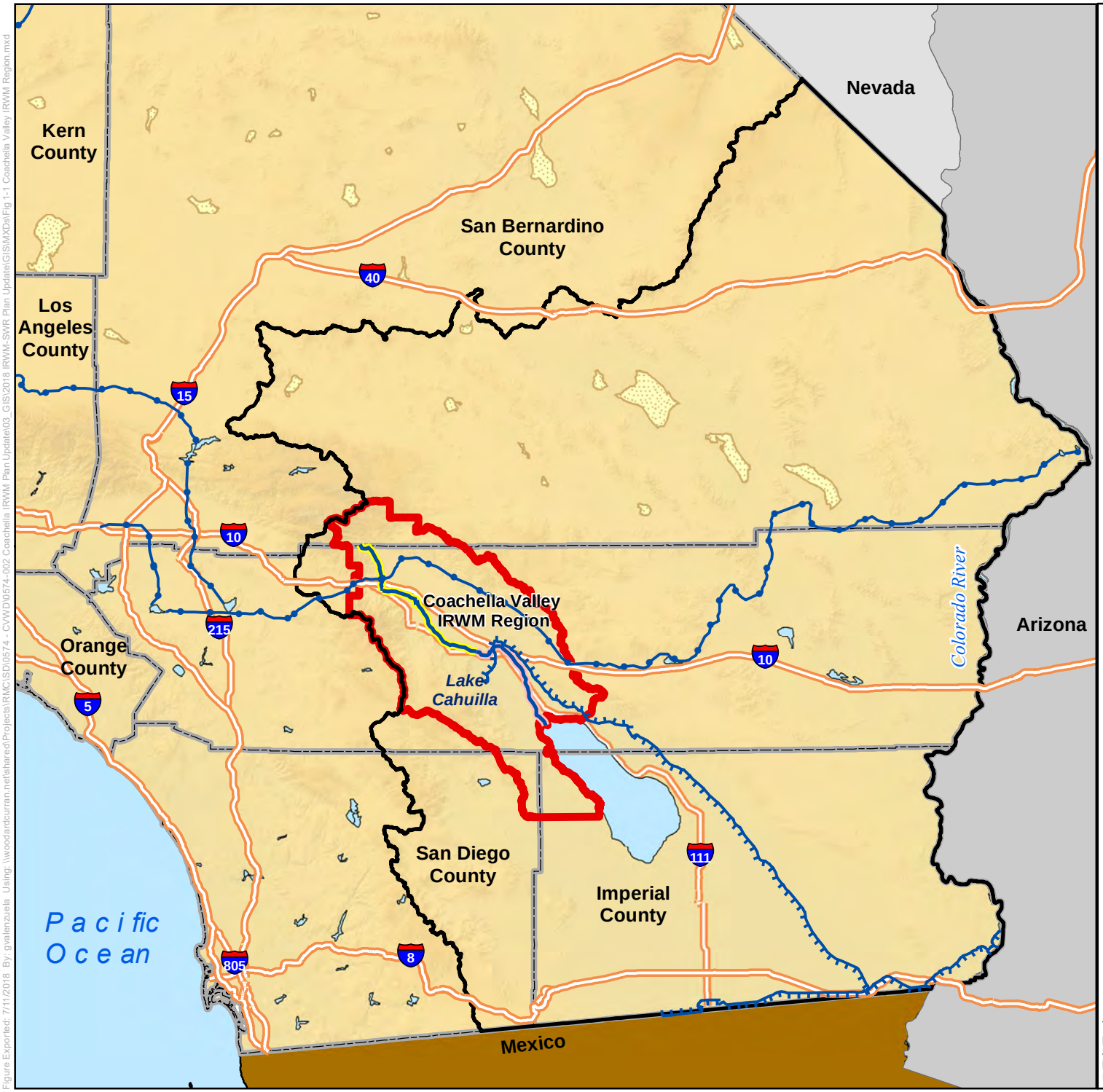
The Coachella Valley IRWM Program is led by the CVRWMG, whose purpose is to foster collaboration among water resource managers, develop and implement the IRWM Plan, and to enable the Coachella Valley Region to apply for grants tied to DWR's IRWM Program. The CVRWMG has also taken on the role of developing the SWRP for the Region, which makes local entities eligible to apply for SWRG grants. While the CVRWMG manages the implementation of the IRWM Plan, it only participates as the lead group in the development of the SWRP. The CVRWMG has participated in development of the SWRP and the "Call for Projects" to develop the project list for the SWRP. The CVRWMG will issue the "Call for

Projects" for the SWGP as necessary, and individual project sponsors will apply for funds to implement projects under that program. The CVRWMG is a partnership composed of the five Coachella Valley water purveyors and one wastewater agency (see **Figure 1-2**). Each of the water purveyors and their statutory authority over water is described below.

- **Coachella Water Authority (CWA)** is a joint powers authority formed by the City of Coachella and Coachella Redevelopment Agency to deliver water to the City of Coachella. CWA has statutory authority over water supply. The City of Coachella also manages the Coachella Sanitary District which includes a wastewater treatment facility. The City also manages stormwater as a co-permittee in the National Pollutant Discharge Elimination System (NPDES) permit for stormwater discharges.
- **Coachella Valley Water District (CVWD)** is a public agency of the State of California organized in 1918 and operating under County Water District Law, California Water Code §30000, et. Seq. and Coachella District Merger Law, Water Code §33100, et seq. As a State Water Project contractor and Colorado River contractor empowered to import water supplies to its service area, CVWD has statutory authority over water supply. In 1937, CVWD merged with the Coachella Valley Stormwater District and assumed stormwater and flood protection authority. CVWD also operates six water reclamation plants within its service area. The water-related services provided by CVWD include irrigation water delivery and agricultural drainage, domestic water delivery, wastewater reclamation and recycling, stormwater protection, and groundwater recharge.
- **Desert Water Agency (DWA)** is an independent special district created in 1961 by a special act of state legislature contained in Chapter 100 of the appendix of the California Water Code. DWA is a State Water Project contractor empowered to import water supplies to its service area, replenish local groundwater supplies, and collect assessments necessary to support a groundwater replenishment program as provided for in the Desert Water Agency Law. DWA has statutory authority over water supply. DWA also collects treated sewer effluent from its service area and operates a water recycling plant to provide non-potable water to golf courses, parks, and schools for irrigation.
- **Indio Water Authority (IWA)** was formed in 2000 and operates a Joint Powers Authority of the City of Indio and the Indio Housing Authority to deliver potable water to the City of Indio. As the legislative and policy entity responsible to the residents of Indio for all municipal water programs and

services, IWA has statutory authority over water supply. The City of Indio also manages stormwater as a co-permittee in the NPDES permit for stormwater discharges.

- **Mission Springs Water District (MSWD)** is a County Water District formed in 1953 (originally named Desert Hot Springs County Water District) under §30000 et seq. of the California Water Code. MSWD has statutory authority over water supply and provides water services to residential and commercial customers through three independent distribution systems. MSWD also operates a sewer collection system and two wastewater treatment plants.
- **Valley Sanitary District (VSD)** is an independent special district that was established in 1925 to provide wastewater collection and treatment services to residential and commercial customers primarily within the City of Indio. VSD is governed by a locally elected Board of Directors.



Coachella Valley IRWM Region / SWR Planning Area

Figure 1-1

Legend

- Colorado River Aqueduct
- Coachella and All American
- Whitewater River Stormwater Channel
- Coachella Valley Stormwater Channel
- Highways
- Water Bodies
- Dry Lakes
- Colorado River Funding
- IRWM / SWR Planning
- County Lines

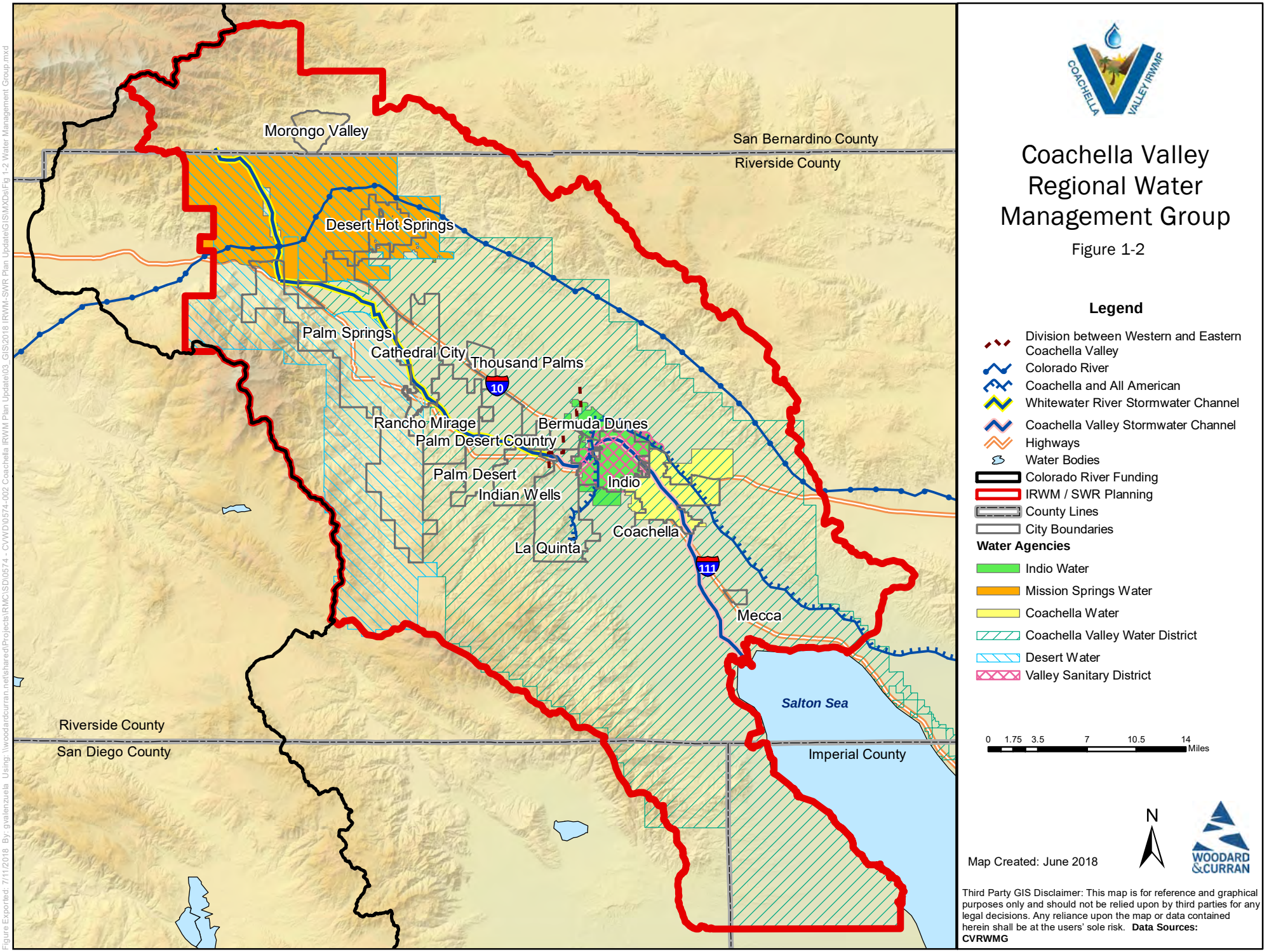
0 5 10 20 30 40 Miles

N

Map Created: June 2018

Third Party GIS Disclaimer: This map is for reference and graphical purposes only and should not be relied upon by third parties for any legal decisions. Any reliance upon the map or data contained herein shall be at the users' sole risk. **Data Sources:** CVRWMG, USGS, and National Atlas of the United States

Figure Exported: 7/11/2018 By: gvalenzuela Using: \\woodardcurran.net\shared\Projects\RMC\SD\0574 - CVWD\0574-002 Coachella IRWM Plan Update\03_GIS\2018 IRWM-SWR Plan Update\GIS\MXDs\Fig 1-1 Coachella Valley IRWM Region.mxd



Coachella Valley Regional Water Management Group

Figure 1-2

Legend

- Division between Western and Eastern Coachella Valley
- Colorado River
- Coachella and All American
- Whitewater River Stormwater Channel
- Coachella Valley Stormwater Channel
- Highways
- Water Bodies
- Colorado River Funding
- IRWM / SWR Planning
- County Lines
- City Boundaries

Water Agencies

- Indio Water
- Mission Springs Water
- Coachella Water
- Coachella Valley Water District
- Desert Water
- Valley Sanitary District

0 1.75 3.5 7 10.5 14 Miles

N

Map Created: June 2018

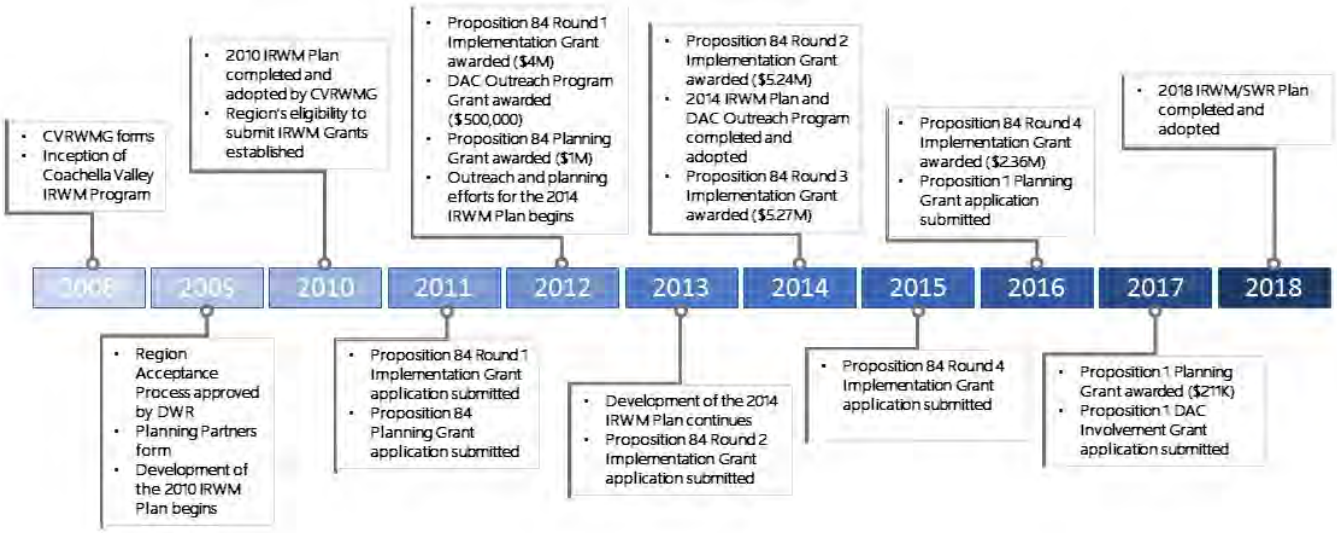
Third Party GIS Disclaimer: This map is for reference and graphical purposes only and should not be relied upon by third parties for any legal decisions. Any reliance upon the map or data contained herein shall be at the users' sole risk. **Data Sources: CVRWMG**

Figure Exported: 7/11/2018 By: gvalenzuela Using: \\woodardcurran.net\shared\Projects\RMC\SD\0574 - CVWD\0574-002 Coachella IRWM Plan Update\03_GIS\2018 IRWM-SWR Plan Update\GIS\MXDs\Fig 1-2 Water Management Group.mxd

1.3 Coachella Valley IRWM Program History

The sections below describe the major Coachella Valley IRWM Program milestones, as shown in **Figure 1-3**. The CVRWMG was established in 2008 and has led development of 3 versions of a regional plan on behalf of the Region.

Figure 1-3: IRWM Program Milestones, 2008-2018

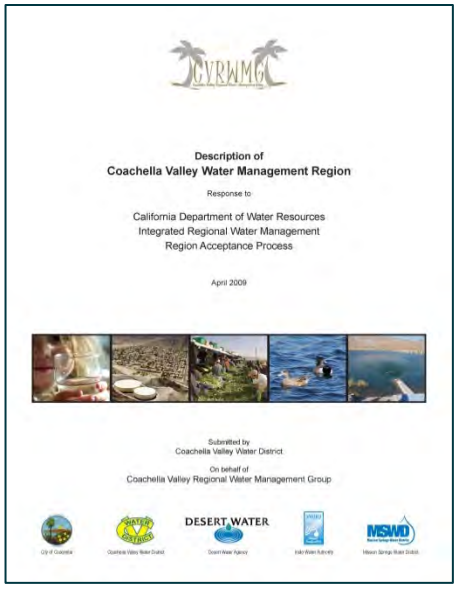


1.3.1 Region Acceptance Process and Formation of the CVRWMG

The preliminary discussions around forming an IRWM Region in the Coachella Valley began in 2004 and continued through 2007. In September 2008, members of the CVRWMG signed a Memorandum of Understanding (MOU) that formalized their partnership and authorized the development of an IRWM Plan. Through the MOU, the CVRWMG agencies agreed to coordinate and share information, prepare and adopt an IRWM Plan for the Region, and implement projects and programs that address issues of common interest. These projects include: water supply programs and projects that improve water supply reliability or water quality, coordination of water supply planning, and development of regional approaches to problem solving and issues resolution. The MOU further defined the types of projects the program should consider and outlined the level of involvement expected of CVRWMG members.

After formalization of the CVRWMG via MOU, the group prepared and submitted a Region Acceptance Process (RAP) document to DWR in April 2009. The RAP provided for the structure, organization, and governance of the Coachella Valley IRWM Program – a collaborative, consensus-seeking process that formalized the CVRWMG's fiduciary responsibility and authority for the planning process. The Program is currently run under the general structure outlined in the RAP, and detailed in *Chapter 7 Stakeholder Involvement*. The RAP also defined the Region and described the relationships and coordination efforts with neighboring IRWM regions.

The CVRWMG continues to work together to implement the IRWM Program, prepare grant applications for IRWM funding, implement IRWM-funded projects, and conduct a variety of IRWM-related planning activities. The CVRWMG MOU has been supplemented five times since its adoption in 2008 to refine roles and responsibilities and ensure effective and efficient governance of the CVRWMG's continual IRWM efforts. The five MOU amendments include:


CVRWMG

Description of
Coachella Valley Water Management Region

Response to

California Department of Water Resources
Integrated Regional Water Management
Region Acceptance Process

April 2009

Submitted by
Coachella Valley Water District

On behalf of
Coachella Valley Regional Water Management Group

DESERT WATER

MSWD

The Coachella Valley Region Acceptance Process documentation, produced by the CVRWMG in 2009, was the first step in developing an IRWM Program to make the Coachella Valley Region eligible for state funding through Proposition 84.

1. 2010 amendment to authorize hiring a consultant to assist in development of the 2010 IRWM Plan;
2. 2012 amendment to authorize preparation and submittal of Proposition 84 Implementation Grant applications;
3. 2012 amendment to authorize the use of a Proposition 84 IRWM Planning Grant to update the 2010 IRWM Plan and to authorize use of a second grant for outreach to disadvantaged communities (DACs);
4. 2013 amendment to authorize hiring a consultant for 2014 IRWM Plan Update and DAC outreach efforts; and
5. 2014 amendment to add VSD as a CVRWMG member.

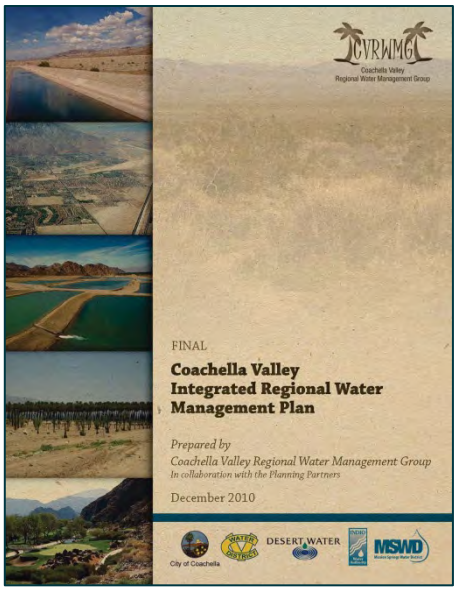
The IRWM Program milestones and activities that required the CVRWMG to update their MOU are described in further detail below. As indicated in the above list of CVRWMG amendments, the Coachella Valley IRWM Program has been highly successful in bringing funding to the Region to support regional and local water and wastewater improvement projects and planning efforts. At the time of this writing, the Region has been awarded approximately $19.5 million in funding for the IRWM Program and associated projects.

1.3.2 2010 IRWM Plan

Following formation of the CVRWMG and the formal recognition of the Region by DWR through the RAP, the Coachella Valley IRWM Program developed the Region's first IRWM Plan in 2010. The 2010 IRWM Plan was developed between 2009 and 2010 with input from stakeholders (as described in detail in *Chapter 7 Stakeholder Involvement*), thorough review of relevant planning documents, and consultation amongst water agencies in the Region. During this process, the Planning Partners (the Region's stakeholder advisory group) provided frequent feedback on the proposed plan, helping to guide and shape the direction and goals of the IRWM Program. The Region's first IRWM Plan was approved by the Planning Partners in December 2010, and formally adopted by the governing bodies of the five CVRWMG member agencies. Adoption of the 2010 IRWM Plan, together with approval of the RAP, made the Region eligible to apply for IRWM funding opportunities, specifically Proposition 84 Implementation Grants.

1.3.3 Proposition 84 IRWM Implementation Grant – Round 1

Proposition 84 Implementation Grants are made available for projects that are included in adopted IRWM Plans and must be applied for through a regional IRWM Program. These projects must address a water resource management issue in the applicable IRWM Region and meet the goals and objectives of the respective IRWM Plan. In 2010, the Region applied for funding under the first round of Proposition 84 Implementation Grant Funding for four projects that would implement conservation measures to meet statewide water conservation goals, protect water quality by replacing septic systems with sewer system connections, and provide onsite potable water treatment to economically disadvantaged communities in the Region. Although the Region competed for Implementation Grant funding with the Mojave IRWM Region, the Region's grant application was successful, and the Region was awarded the full grant request of $4 million to implement these projects.



The Region was awarded $4 million in Proposition 84 Funding for four high-priority implementation projects.

Through the projects funded via the Proposition 84– Round 1 Implementation Grant, Coachella Valley residents in portions of the Region, including Desert Hot Springs, will be converted from septic systems to sewer, while naturally-high arsenic levels will be treated with onsite reverse osmosis systems in DACs within the eastern portion of the Region, and future groundwater demands will be reduced through a regional water conservation program. These projects implement much needed improvements in the Region, helping to protect human and environmental health, protect natural resources, and improve the Region's water supplies.

1.3.4 Proposition 84 IRWM Planning Grant

As the Coachella Valley IRWM Program evolved, and additional IRWM guidelines and grant opportunities have been released by DWR, an update to the 2010 IRWM Plan was deemed necessary. To fund this update, the Region applied for, and was awarded, a $1 million Proposition 84 Planning Grant. The Proposition 84 Planning Grant funded the efforts taken to produce the 2014 IRWM Plan, including increasing regional outreach efforts, incorporating updated information into the 2010 IRWM Plan, conducting technical studies

in support of IRWM Plan development and goals, and developing necessary updates to ensure that the 2014 IRWM Plan is consistent with updated DWR IRWM Guidelines.

1.3.5 Proposition 84 IRWM DAC Outreach Efforts

In 2012, the Region received a $500,000 grant from DWR to develop and implement a Disadvantaged Community (DAC) Outreach Demonstration Program. Through this program, the CVRWMG developed and implemented methods to improve DAC participation in the 2014 IRWM Plan, and assisted DWR in developing a model DAC Program for similar areas in California. The DAC Program grant funded efforts to improve characterizations of DACs in the Region, expand outreach to DACs, identify projects that benefit DACs, and assist in development of engineering and project management plans for DAC projects. The DAC Outreach Program, which was completed in December 2013, is described in further detail in *Chapter 7 Stakeholder Involvement* and *Chapter 4 Disadvantaged Communities*.

DAC Outreach Efforts included workshops in the eastern Coachella Valley in June of 2013 to directly gather input from DAC stakeholders.

1.3.6 Proposition 84 IRWM Implementation Grant – Round 2

In 2012, the CVRWMG sent out a call-for-projects to all regional stakeholders, announcing solicitation of projects to include in the Region's second Implementation Grant application to DWR. In the Proposition 84 – Round 2 Implementation Grant cycle, $5.24 million was made available to the Colorado River Funding Area, which includes four IRWM Regions that compete for the available funding: Coachella Valley IRWM Region, Mojave IRWM Region, Imperial IRWM Region, and Borrego IRWM Region. The CVRWMG and Planning Partners together executed the project prioritization and selection process outlined in the 2010 IRWM Plan and selected five IRWM projects for inclusion in the grant application. The projects included in the Round 2 grant application will expand the Region's non-potable water use, ensure that the Region can continue to use recycled water through compliance with the Recycled Water Policy, implement two priority sewer extension programs within DACs, and complete necessary planning and design work to connect an economically disadvantaged tribal community to the municipal water system. Final grant awards were announced by DWR in January 2014 and the Coachella Valley received its full $5.24 million grant request.

1.3.7 Proposition 84 IRWM Implementation Grant – Round 3 (Drought Round)

In 2014, the CVRWMG submitted an application for the Region's third Implementation Grant application to DWR. In the Proposition 84 – Round 3 Implementation Grant cycle, $12.53 million was made available to the Colorado River Funding Area. Three projects were selected for inclusion in the grant application: the Regional Turf Reduction Program, IWA Recycled Water Project, and DAC Onsite Plumbing Retrofit Program (a partnership between the CVWD, Pueblo Unido CDC, and the Leadership Council for Justice and Accountability). These projects focused on water conservation efforts through turf rebates, constructing backbone infrastructure for a recycled water distribution system, drinking water quality, and plumbing

systems in economically disadvantaged communities. Final grant awards were announced by DWR in November 2014 and the Coachella Valley received its full $5.27 million grant request.

1.3.8 Proposition 84 IRWM Implementation Grant – Round 4

In 2015, the CVRWMG sent out a call-for-projects to all regional stakeholders, announcing solicitation of projects to include in the Region's fourth Implementation Grant application to DWR. In the Proposition 84 – Round 4 Implementation Grant cycle, $4.18 million was made available to the Colorado River Funding Area (CRFA). The CVRWMG and Planning Partners together executed the project prioritization and selection process outlined in the 2014 IRWM Plan, and selected six IRWM projects for inclusion in the grant application. The projects included in the Round 3 grant application included the MSWD Water Supply Reliability Program, Regional Turf Reduction Program, Regional Well Retrofit and Abandonment Program, DAC Septic Rehabilitation and Demand Reduction Project, Torres-Martinez Septic to Sewer Conversion Project, and the Shady Lane Water and Sewer Connection Project. These projects focused on a variety of water supply and water quality issues, including groundwater supply and monitoring, reduced water use, groundwater quality, septic systems in economically disadvantaged communities. Final grant awards were announced by DWR in January 2016 and the Coachella Valley received its full $2.36 million grant request.

1.3.9 Proposition 1 IRWM Planning Grant

In 2016, the CVRWMG submitted a Proposition 1 Planning Grant application to DWR to update the 2014 IRWM Plan to meet the *2016 IRWM Program Guidelines*. This update was deemed necessary to allow for continued eligibility for future Proposition 1 funding opportunities for the Region. In addition, this planning grant funded the incorporation of the SWRP requirements outlined in the SWRCB's *2015 SWRP Guidelines* to provide Coachella Valley stakeholders with eligibility for Proposition 1 stormwater projects under the Storm Water Grant Program. Final grant awards were announced by DWR in February 2017 and the Coachella Valley received its full $211,982 grant request.

1.3.10 Proposition 1 IRWM DAC Involvement Grant

In 2016, the CVRWMG participated in the submittal of a CRFA-wide Proposition 1 DAC Involvement Grant application to DWR to continue the outreach efforts to identify critical DAC needs within the CRFA, including the Region. In the Proposition 1 IRWM DAC Involvement Grant cycle, a minimum of $2.25 million was made available to the Colorado River Funding Area. The CVRWMG highlighted ten separate DAC Involvement Activities, including a DAC Needs Assessment and nine planning activities benefitting specific DACs in the CRFA. The nine planning activities were proposed by project sponsors and vetted through their respective IRWM Region's project selection process. The three DAC planning projects funded in the Region include a hexavalent chromium treatment design project and two water and sewer consolidation design projects. DWR issued a letter of commitment to the CRFA in October 2017 in which the CRFA received its full $2.64 million grant request. The Region was awarded $1.18 million for the three DAC planning projects.

1.4 Overview of Stakeholder Involvement

Building understanding and support for the Coachella Valley IRWM Program and grant application processes among key stakeholders, as well as the general public continues to be critical to ensuring the IRWM/SWR Plan reflects local needs, promotes the formation of partnerships, and encourages coordination with state and federal agencies. The CVRWMG has taken a proactive approach to implementing public outreach and information sharing since 2009, and this effort has generated broad-based support for the IRWM Program. Regional outreach and stakeholder involvement efforts are described in detail in *Chapter 7 Stakeholder Involvement*. For the 2014 IRWM Plan, targeted outreach was implemented to address the stakeholder participation gaps identified by the Coachella Valley IRWM Program. The CVRWMG has continued to conduct stakeholder outreach through the 2018 IRWM/SWR Plan development and will continue to do so for future updates as well. Outreach efforts during the 2018 timeframe focused on engaging the necessary stakeholders for an effective transition of the IRWM Plan into this combined IRWM/SWR Plan. The following sections present an overview of the variety of outreach mechanisms used to improve the general awareness of, and participation in, the Coachella Valley IRWM Program and SWGP.

1.4.1 Stakeholder Coordination and Public Involvement

*This section complies with the **Organization, Coordination, Collaboration** requirements for the SWRP by outlining the local agencies, nongovernmental organizations, and community participants consulted in IRWM/SWR Plan development, identifying agencies that need to participate in order to address the runoff management objectives of the IRWM/SWR Plan, identifying nonprofit organizations that are working on stormwater management, and discussing public engagement efforts in IRWM/SWR Plan development.*

The goal of the stakeholder coordination effort is to provide a means for the Region's various entities with interests and/or authority over water management in the region to be actively involved in the IRWM Program, development of the SWRP, and implementation of the IRWM/SWR Plan. *Chapter 7 Stakeholder Involvement* contains a detailed description of the various stakeholders involved in the IRWM Program, as well as the local agencies and nongovernmental organizations consulted during IRWM/SWR Plan development. These include stakeholders historically involved in past IRWM activities, as well as additional entities focused specifically on stormwater.

The goal of public involvement is to increase awareness, understanding, and support for the Coachella Valley IRWM/SWR planning effort among the general public. The benefits of keeping the general public informed of the IRWM Program, the SWR planning process, and subsequent IRWM/SWR Plan implementation include educating constituents and politicians about the importance and interrelation of water management strategies, increasing regional and local support for projects, and generating broad-based support for continued regional coordination.

Various outreach activities were undertaken to solicit public involvement in the development of the 2018 Coachella Valley IRWM/SWR Plan. These outreach activities are described in detail in *Chapter 7 Stakeholder Involvement, Section 7.4, Balanced Access and Opportunity for Participation.*

1.4.2 Planning Partners

*This section complies with the **Organization, Coordination, Collaboration** requirements for the SWRP by outlining the local agencies, nongovernmental organizations, and community participants consulted in IRWM/SWR Plan development, discussing public engagement efforts in IRWM/SWR Plan development, and describing the planning and coordination of existing local governmental agencies.*

The Coachella Valley IRWM Program is supported by the Planning Partners, who serve an advisory role to the CVRWMG for IRWM Program activities such as the development of the 2010 and 2014 IRWM Plans, development of the 2018 IRWM/SWR Plan, implementation of the DAC Outreach Program, and submittal of IRWM-related grant applications to DWR. The Planning Partners include representatives from various governments and organizations including local cities and communities, the County of Riverside, tribal governments, disadvantaged community representatives, regulatory agencies, and other local water management stakeholders. As described in *Chapter 7 Stakeholder Involvement,* Planning Partners meet on a quarterly basis, and support the CVRWMG with the following tasks:

The Coachella Valley Planning Partners have been an integral in developing the 2010 and 2014 IRWM Plans, the 2018 IRWM/SWR Plan and other IRWM Program components.

- Reviewing and contributing to IRWM/SWR Plan updates, and identifying changes in the Region since the last IRWM Plan;
- Providing guidance on how to engage key stakeholders, including DACs and tribes;
- Contributing to agenda and content for public workshops;
- Reviewing and contributing to funding application content;
- Facilitating community engagement and participation in SWRP implementation; and
- Facilitating coordination with agencies and organizations needed for SWR project implementation.

1.4.3 DAC Outreach

*This section complies with the **Organization, Coordination, Collaboration** requirements for the SWRP by highlighting the community participation provided for in IRWM/SWR Plan development, discussing public engagement efforts in IRWM/SWR Plan development, and describing strategies to engage DACs.*

As described in *Chapter 7 Stakeholder Involvement* and *Chapter 4 Disadvantaged Communities*, the CVRWMG has engaged in extensive, targeted outreach to DACs since 2009. In addition to general outreach efforts, which aim to ensure that the needs and concerns of DACs are incorporated into IRWM/SWR planning documents and encourage increased participation of DACs in the IRWM Program, the Coachella

Valley IRWM Program has provided increased technical, engineering, and grant support for DACs applying for IRWM grant opportunities. During the four rounds of Proposition 84 Implementation Grant funding, DACs were invited to submit projects for consideration in the Region's application package, and assistance was provided to DACs to ensure that their project submittals were complete and competitive. Of the 18 total projects selected for inclusion in the Region's four Proposition 84 Implementation Grant packages, 11 of those projects would help to meet a critical water supply or water quality issue of a DAC.

Through the DAC Outreach Program, additional planning and engineering support was provided to DAC projects. This task aims to address an issue expressed to the CVRWMG by several of the Region's DACs regarding complexity of IRWM grant applications. The intention of this additional DAC support was to help DAC projects become more competitive for the third and final round of Proposition 84 IRWM funding, which occurred in 2014 and 2015, respectively. Detailed information about project support and other targeted DAC outreach efforts conducted through the DAC Outreach Program are provided in *Chapter 7 Stakeholder Involvement* and *Chapter 4 Disadvantaged Communities*. This level of DAC support has been continued by the CVRWMG for all rounds of Proposition 1.

The extensive outreach conducted with DACs resulted in a new chapter for the 2014 IRWM Plan, *Chapter 4 Disadvantaged Communities*, which, with the input of DAC residents and stakeholders, characterizes DACs in the Region. This characterization includes detailed mapping of DACs and identification of DAC needs and issues. Through collaboration with DAC organizations, participation and input from DACs that contributed to this chapter was high and provided great insight into the needs of DACs and the types of projects that should be prioritized. Collaboration continued with DACs during the 2018 IRWM/SWR Plan Update to engage these communities and ensure characterization of DAC needs and issues are updated. The CVRWMG will continue to engage DAC stakeholders for future Plan updates and during IRWM and SWGP project solicitation periods.

1.4.4 Tribal Outreach

*This section complies with the **Organization, Coordination, Collaboration** requirements for the SWRP by highlighting the community participation provided for in IRWM/SWR Plan development and discussing public engagement efforts in IRWM/SWR Plan development.*

The goal of engaging the Region's tribal governments is to better understand their critical issues and needs, as it pertains to water resources and stormwater management. Through targeted outreach, the CVRWMG learned more about the major water-related concerns facing the tribes so that long-term implementation of the IRWM/SWR Plan may be responsive to those needs. The Coachella Valley IRWM/SWR planning area includes six federally recognized Native American Tribal Reservations, with a seventh located along the western boundary (denoted with an asterisk "*"). Five of these Tribes expressed interest in participating in the IRWM Program and staff from the tribes were engaged one-on-

The CVRWMG used outreach meetings in June of 2013 to connect with disadvantaged communities regarding their water resources-related issues and needs.

one during outreach conducted for the IRWM Program, and one tribe decided not to participate (denoted with two asterisks "**"):

- Agua Caliente Band of Cahuilla Indians
- Augustine Band of Mission Indians
- Cabazon Band of Mission Indians
- Morongo Band of Mission Indians*
- Santa Rosa Band of Cahuilla Indians**
- Torres-Martinez Desert Cahuilla Indians
- Twenty-Nine Palms Band of Mission Indians

Additionally, meetings were conducted with the Bureau of Indian Affairs and Indian Health Services to gain a better understanding of tribal needs from a regional perspective. The extensive outreach conducted with the Region's Tribal Nations resulted in a new chapter for the 2014 IRWM Plan, *Chapter 5 Tribal Water Resources*, which, with the input of tribal stakeholders, characterizes the Region's tribes, tribal water resources, and tribal issues pertaining to water resources in the Region. Various outreach activities that were conducted to solicit Tribal members and solicit input from tribes are described in further detail in *Chapter 7 Stakeholder Involvement, Section 7.6 Tribal Outreach and Coordination.*

1.4.5 Public Outreach

*This section complies with the **Organization, Coordination, Collaboration** requirements for the SWRP by highlighting the community participation provided for in IRWM/SWR Plan development and discussing public engagement efforts in IRWM/SWR Plan development.*

In order to ensure that all potential stakeholders interested in water resources and stormwater management have been informed about and given the opportunity to contribute to the 2014 IRWM Plan, the CVRWMG conducted a series of public outreach meetings to the following groups:

- Coachella Valley Association of Governments, Technical Advisory Committee
- Coachella Valley Association of Governments, Energy/Environmental Resources Workgroup
- Riverside County Planning Commission
- Regional Water Quality Control Board, Colorado River
- MS4 Co-permittees, Stormwater Desert Task Force
- Coachella Valley Irrigated Lands Coalition
- Desert Valley Builders Association, Legislative Affairs Forum
- Coachella Valley Housing Review Committee

During development of the 2018 IRWM/SWR Plan, the CVRWMG presented on the development and incorporation of the SWRP into the IRWM Plan to the MS4 Co-permittees, Desert Task Force and invited the above listed groups, among other various stakeholders, to the Planning Partners meetings to engage and solicit input from all potential stakeholders in the IRWM/SWR planning area.

1.5 2018 IRWM/SWR Plan Development

*This section complies with the **Implementation Strategy and Schedule** requirements for the SWRP by confirming that the IRWM/SWR Plan will be submitted to the applicable IRWM group.*

The 2018 IRWM/SWR Plan was developed by various stakeholders in collaboration with the CVRWMG, Planning Partners, and consulting team. Through a series of meetings and public workshops, updated water resource needs, issues, and conflicts were identified; regional goals and objectives were reviewed; and projects that contribute to Plan objectives were identified.

To streamline regional planning and stakeholder efforts, the CVRWMG decided to develop and incorporate a SWRP for the Region into a combined 2018 IRWM/SWR Plan as a SWRP functional equivalent. The IRWM/SWR Plan was updated according to the DWR *2016 IRWM Guidelines* and the requirements of the Water Code using guidance from the *SWRCB 2015 SWRP Guidelines*. As part of the IRWM/SWR Plan update, a special "Call for Projects" was held to capture the SWRP projects in the Planning Area, as described in *Section 9.5.3 Stormwater Resource Plan Project Prioritization Process*.

This IRWM/SWR Plan is organized in accordance with IRWM Plan Standards established in **Volume 2, Section II** of DWR's *2016 IRWM Grant Program Guidelines* (July 2016) and requirements of the SWRCB *2015 SWRP Guidelines* (December 2015). **Table 1-1** cross-references the IRWM Plan Standards with relevant sections of the Coachella Valley IRWM/SWR Plan and **Table 1-2** cross-references the 2015 SWRP requirements with relevant sections of the IRWM/SWR Plan. **Appendix VI-A.1** and **Appendix VI-A.2** presents the detailed Plan Standards Review and SWRP Checklist, respectively. The Appendices detail the requirements in each standard, how the IRWM/SWR Plan meets those requirements, and which section of the IRWM Plan addresses each requirement and standard. **Figure 1-4** provides a conceptual graphic illustrating the Coachella Valley IRWM/SWR Plan framework.

Table 1-1: Organization of IRWM/SWR Plan in Relation to *2016 IRWM Plan Standards*

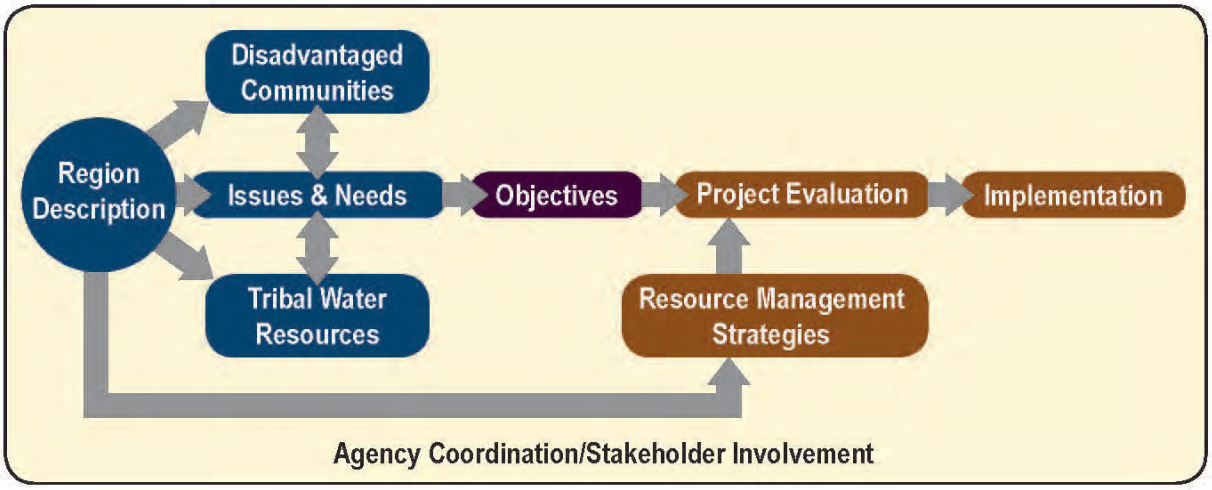
IRWM Plan Standards	Location in 2018 Coachella Valley IRWM/SWR Plan
Governance	Objectives (Chapter 6) Stakeholder Involvement (Chapter 7) Agency Coordination (Chapter 10) Framework for Implementation (Chapter 11)
Region Description	Region Description (Chapter 2) Issues and Needs (Chapter 3) Disadvantaged Communities (Chapter 4) Tribal Water Resources (Chapter 5) Resource Management Strategies (Chapter 8) Agency Coordination (Chapter 10)
Objectives	Issues and Needs (Chapter 3) Disadvantaged Communities (Chapter 4) Tribal Water Resources (Chapter 5) Objectives (Chapter 6) Resource Management Strategies (Chapter 8)
Resource Management Strategies	Resource Management Strategies (Chapter 8)
Integration	Resource Management Strategies (Chapter 8) Project Review and Prioritization Process (Chapter 9)
Project Review Process	Project Review and Prioritization Process (Chapter 9)
Impact and Benefit	Framework for Implementation (Chapter 11)
Plan Performance and Monitoring	Objectives (Chapter 6) Framework for Implementation (Chapter 11)
Data Management	Framework for Implementation (Chapter 11)
Finance	Framework for Implementation (Chapter 11)
Technical Analysis	Issues and Needs (Chapter 3)
Relation to Local Water Planning	Agency Coordination (Chapter 10)
Relation to Local Land Use Planning	Agency Coordination (Chapter 10)
Stakeholder Involvement	Disadvantaged Communities (Chapter 4) Tribal Water Resources (Chapter 5) Stakeholder Involvement (Chapter 7) Resource Management Strategies (Chapter 8)
Coordination	Disadvantaged Communities (Chapter 4) Tribal Water Resources (Chapter 5) Stakeholder Involvement (Chapter 7) Agency Coordination (Chapter 10)
Climate Change	Region Description (Chapter 2) Issues and Needs (Chapter 3) Resource Management Strategies (Chapter 8) Project Review and Prioritization Process (Chapter 9)

Table 1-2: Organization of IRWM/SWR Plan in Relation to *2015 SWRP Guidelines* Requirements

SWR Plan Standards	Location in 2018 Coachella Valley IRWM/SWR Plan
Watershed Identification	Region Description (Chapter 2)
Water Quality Compliance	Region Description (Chapter 2)
Organization, Coordination, Collaboration	Disadvantaged Communities (Chapter 4) Tribal Water Resources (Chapter 5) Stakeholder Involvement (Chapter 7) Agency Coordination (Chapter 10)
Quantitative Methods	Objectives (Chapter 6) Project Review and Prioritization Process (Chapter 9) Framework for Implementation (Chapter 11) Appendix VI-H
Identification and Prioritization of Projects	Objectives (Chapter 6) Resource Management Strategies (Chapter 8) Project Review and Prioritization Process (Chapter 9)
Implementation Strategy and Schedule	Objectives (Chapter 6) Stakeholder Involvement (Chapter 7) Project Review and Prioritization Process (Chapter 9) Framework for Implementation (Chapter 11)
Education, Outreach, Public Participation	Stakeholder Involvement (Chapter 7)

As demonstrated in **Figure 1-4**, the chapters included in the 2018 IRWM/SWR Plan are inter-related and build upon one another. This graphic also indicates that information in the *Chapter 10 Agency Coordination* and *Chapter 7 Stakeholder Involvement* are connected to every chapter in the IRWM/SWR Plan since stakeholder information was solicited for all IRWM/SWR Plan chapters. The 2018 IRWM/SWR Plan and its Appendices are presented in **Volume I**, while the DAC Outreach Program (see *Chapter 4 Disadvantaged Communities*) and supporting materials are presented in **Volume II**.

Figure 1-4: IRWM/SWR Plan Framework



The overall direction and development of the IRWM/SWR Plan was provided by the CVRWMG and Planning Partners. The CVRWMG were assisted in preparing the 2018 IRWM/SWR Plan Update by Woodard & Curran.

2 Region Description

This chapter provides a comprehensive overview of the Coachella Valley Integrated Regional Water Management (IRWM) Region (Region), building from the information included within the Region Acceptance Process (RAP) and the 2010 and 2014 IRWM Plans. This chapter also describes climate change in a legislative context, discusses potential implications of climate change, and discusses the Region's vulnerabilities to climate change. Climate change vulnerabilities and identification of potential climate adaptation responses are evaluated in *Chapter 3 Issues and Needs*, and *Chapter 8 Resource Management Strategies*.

IRWM Standards: *This chapter complies with the* ***Region Description Standard*** *by documenting that the IRWM planning region is defined by the combination of the water systems being managed; common water issues; and that there is sufficient variety of interested parties included in the planning region. As a region receiving water from the Sacramento-San Joaquin Delta (Delta), the chapter also discusses how the efforts in the region will help reduce additional future dependence on Delta supplies.*

Stormwater Resource Plan (SWRP) Requirements: *This chapter complies with the* ***Watershed Identification*** *and* ***Water Quality Compliance*** *requirements for the SWRP by describing the watershed characteristics, stormwater quality issues and priorities, and related permit requirements.*

The Region is chiefly the same as the Whitewater River Watershed and is also known as the Coachella Valley (refer to **Figure 2-1**). The Region's watershed boundaries to the north and west are the rugged, barren mountain ranges of the Colorado Desert, San Bernardino Mountains, Little San Bernardino Mountains, and Mecca Hills. The watershed boundaries to the east are Mortmar, the Salton Sea, and Travertine Rock. The eastern boundary is defined by the watershed that encloses all surface drainage emptying into the north end of the Salton Sea. The Salton Sea is not within the IRWM Region. The southernmost boundary follows the shoreline of the Salton Sea southward to include the political boundary of the Salton Community Services District (SCSD), and then follows the SCSD political boundary north to the watershed divide. The watershed boundaries to the south and west are the high precipitous Santa Rosa Mountains and San Jacinto Mountains, which create an effective barrier against the easterly moving coastal storms. The western boundary is composed of a political line that separates the Desert Water Agency (DWA) and Mission Springs Water District (MSWD) from the San Gorgonio Pass Water Agency (SGPWA) and the San Gorgonio IRWM Region.

The Coachella Valley is geographically divided into the eastern Coachella Valley and the western Coachella Valley. The boundary between the eastern Coachella Valley and western Coachella Valley extends from Washington Street and Point Happy northeast to the Indio Hills near Jefferson Street. The eastern Coachella Valley is considered the area southeast of the boundary line, and the western Coachella Valley is northwest of the boundary line (refer to **Figure 2-3**).

The geographic divide between eastern Coachella Valley and western Coachella Valley is widely used for water resources planning purposes, because the Region's geology varies between the eastern Coachella Valley and western Coachella Valley. The western Coachella Valley is generally underlain by coarse-grain sediments that allow surface water to percolate to the Region's groundwater basins. In contrast, the eastern Coachella Valley is underlain by several impervious clay layers (an aquitard) that impedes groundwater recharge.

The Coachella Valley is located in central Riverside County, although small portions of the Region also lie within San Bernardino, San Diego, and Imperial counties. The Region is about 65 miles long on a northwest-southeast trending axis and covers approximately 1,650 square miles. The Region is drained primarily by the Whitewater River that conveys flows southward to the Coachella Valley Stormwater Channel (CVSC), which conveys flows to the Salton Sea at an elevation of approximately 220 feet below sea level. The Coachella Valley is characterized by low precipitation and high summer daytime temperatures. Water bodies in the Coachella Valley include the Salton Sea, a collection of small ephemeral streams and creeks, and the Whitewater River, an ephemeral stream in the western Coachella Valley that connects to the CVSC.

The Coachella Valley is composed of nine city jurisdictions and unincorporated areas with a total estimated population of approximately 444,500 in 2016 (United States Census 2016). The majority of the Region's population resides in incorporated cities, which have a combined population of approximately 367,433 (U.S. Census 2016). These population estimates do not account for the substantial number of seasonal visitors that reside within the Coachella Valley during the winter months and the Region's seasonal work force that is largely associated with agricultural harvest season as these seasonal residents are generally not captured in the United States Census data.

In spite of its dry conditions and intense temperatures, the Coachella Valley generates over half-a-billion dollars' worth of crop value annually through its agricultural sector, which is supported by Colorado River allocations delivered via the Coachella branch of the All American Canal. Secure water supplies including the Region's groundwater basins, Colorado River Water allocations, and State Water Project (SWP) Allotments have also supported high caliber golf and country clubs making Coachella Valley a premier destination for both golf and tourism; tourism is a major contributor to the region's economy.

The Region is appropriate for integrated regional water management because of its geologic proximity, interconnected economies, and inclusion within the Whitewater River Watershed. The selected regional boundary falls under the Colorado River Basin Regional Water Quality Control Board (Regional Board) jurisdiction, multiple political authorities, and several water purveyors.

2.1 Selection of Regional Boundary

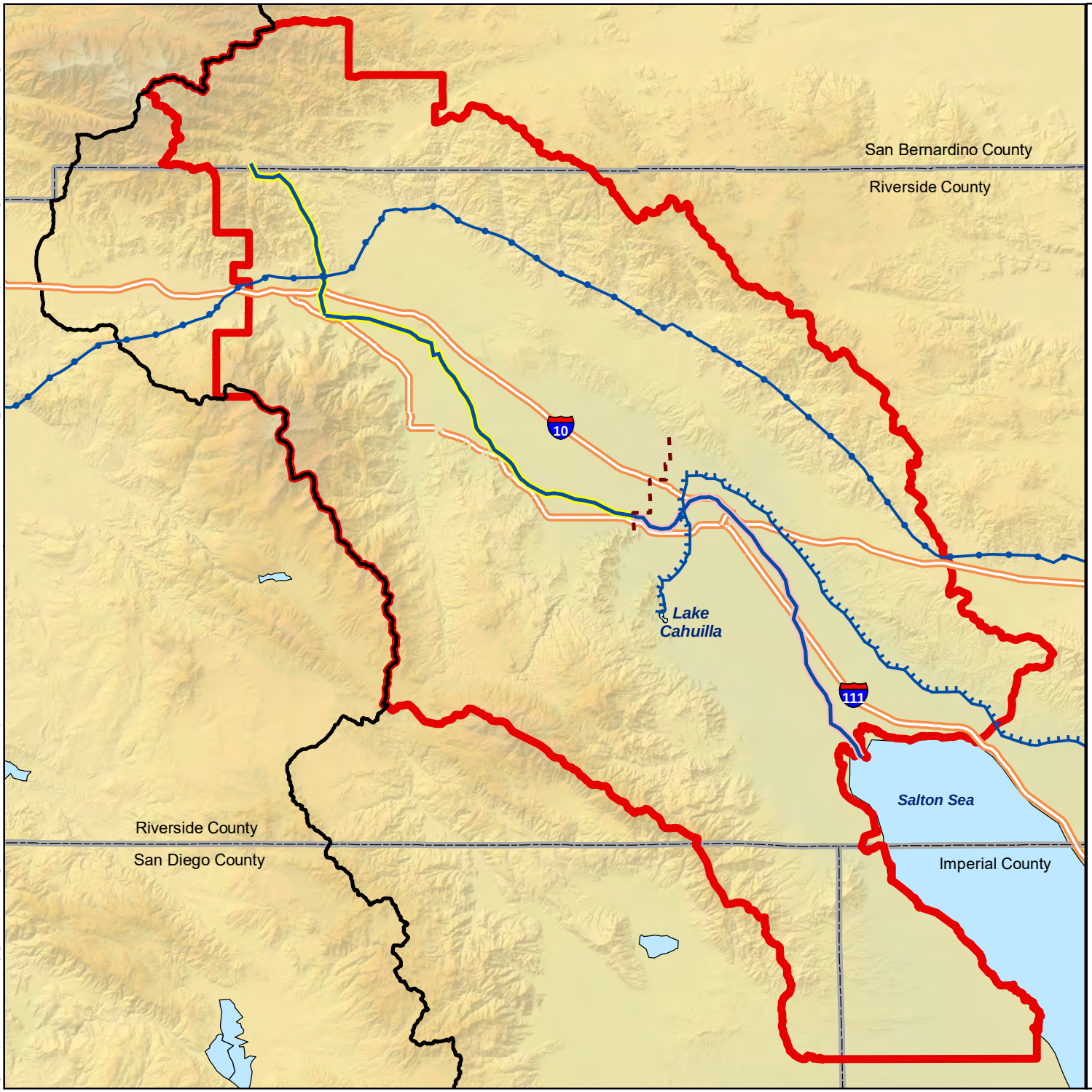
The Coachella Valley IRWM Regional Boundary (Regional Boundary) was selected because it allows for the inclusion of all pertinent agencies and stakeholders interested in water management in the Coachella Valley. The Regional Boundary selected shares a common water supply, and wastewater and flood control infrastructure, making it easier to coordinate and establish regional goals and objectives. Because the Region includes the service areas of the six partner agencies, each of the partners indicated their individual intent to adopt the Coachella Valley IRWM/SWR Plan and the Regional Boundary was determined through stakeholder processes.

The western political boundary bordered by the SGPWA and the San Gorgonio IRWM Region just east of the Whitewater River Watershed boundary was omitted from the Regional Boundary because water

supplies within the SGPWA's service area are independent of water supplies within the Coachella Valley. Groundwater basins of the SGPWA are separated from the Coachella Valley's groundwater basins by geological features near Fingal Point, and while the regions share surface water drainage areas, surface water flow only occurs during infrequent extreme, prolonged rain events. In addition, the two planning areas are separated by a political boundary, do not share customers, and their stakeholder groups do not overlap.

On April 28, 2009, the Coachella Valley Regional Water Management Group (CVRWMG) submitted a RAP application to the California Department of Water Resources (DWR) for establishment of the Coachella Valley IRWM Region (Region). DWR approved the Region in November 2009. In 2013, a Regional Boundary change was approved by the CVRWMG and DWR to extend the southern boundary to include the SCSD. The SCSD requested to be included in the Region so they would be eligible for IRWM funding and because they are served by Coachella Valley Water District (CVWD). The Regional Boundary was extended to follow CVWD's southern service area boundary, which includes the SCSD service area. In 2017, a second Regional Boundary change was approved by the CVRWMG and DWR to extend the northern boundary bordering the San Bernardino Mountains. This change extended the Regional Boundary to include the majority of the remaining northern portion of the Whitewater River Watershed, including the upper portions of the Morongo Hydrologic Area (HA), Mission Creek Hydrologic Sub-Area (HSA), and most of the Garnet Hill HSA. The revised Regional Boundary does not include a small western portion of the Garnet Hill Sub-watershed, which includes the East Fork of the Whitewater River, as this area is included in the San Gorgonio IRWM Region. The CVRWMG decided to extend the Region's boundary because the area's surface waters flow into the Coachella Valley.

Further information regarding neighboring and/or overlapping IRWM/SWR efforts and an explanation of the planned working relationship that promotes cooperation between IRWM regions can be found in *Chapter 10 Agency Coordination, Section 10.1.2 Neighboring and/or Overlapping IRWM/SWR Efforts*.



Coachella Valley IRWM Region / SWR Planning Area

Figure 2-1

Legend

- Division between Western and Eastern Coachella Valley
- Colorado River
- Coachella and All American
- Whitewater River Stormwater Channel
- Coachella Valley Stormwater Channel
- Highways
- Water Bodies
- Colorado River Funding
- IRWM / SWR Planning
- County Lines

0 1.75 3.5 7 10.5 14 Miles

N

Map Created: June 2018

Third Party GIS Disclaimer: This map is for reference and graphical purposes only and should not be relied upon by third parties for any legal decisions. Any reliance upon the map or data contained herein shall be at the users' sole risk. **Data Sources:** CVRWMG, USGS, National Atlas of the United States

Figure Exported: 7/11/2018 By: gvalenzuela Using: \\woodardcurran.net\shared\Projects\RMC\SD\0574 - CVWD\0574-002 Coachella IRWM Plan Update\03_GIS\2018 IRWM-SWR Plan Update\GIS\MXDs\Fig 2-1 Coachella Valley IRWM Region.mxd

2.2 Watershed and the Water Systems

This section includes a description of Watersheds and Watershed Processes within the Coachella Valley IRWM Region.

2.2.1 Watershed

*This section complies with the **Watershed Identification** requirements for the SWRP by identifying and describing watershed and sub-watershed(s) for stormwater resource planning, explaining why watershed and sub-watershed(s) are appropriate for stormwater management with a multiple-benefit watershed approach, identifying surface water resources within the watershed, mapping tributaries within the watershed, and identifying natural watershed processes and how those processes have been disrupted.*

The Region is generally comprised of the Whitewater River Watershed, with the western edge formed by the DWA and MSWD political boundaries and the southern edge formed by the CVWD political boundary (as described in *Chapter 1 Introduction, Section 1.1 Background)*. The Regional Boundary serves as the planning area for the IRWM Plan and SWRP components of this plan.

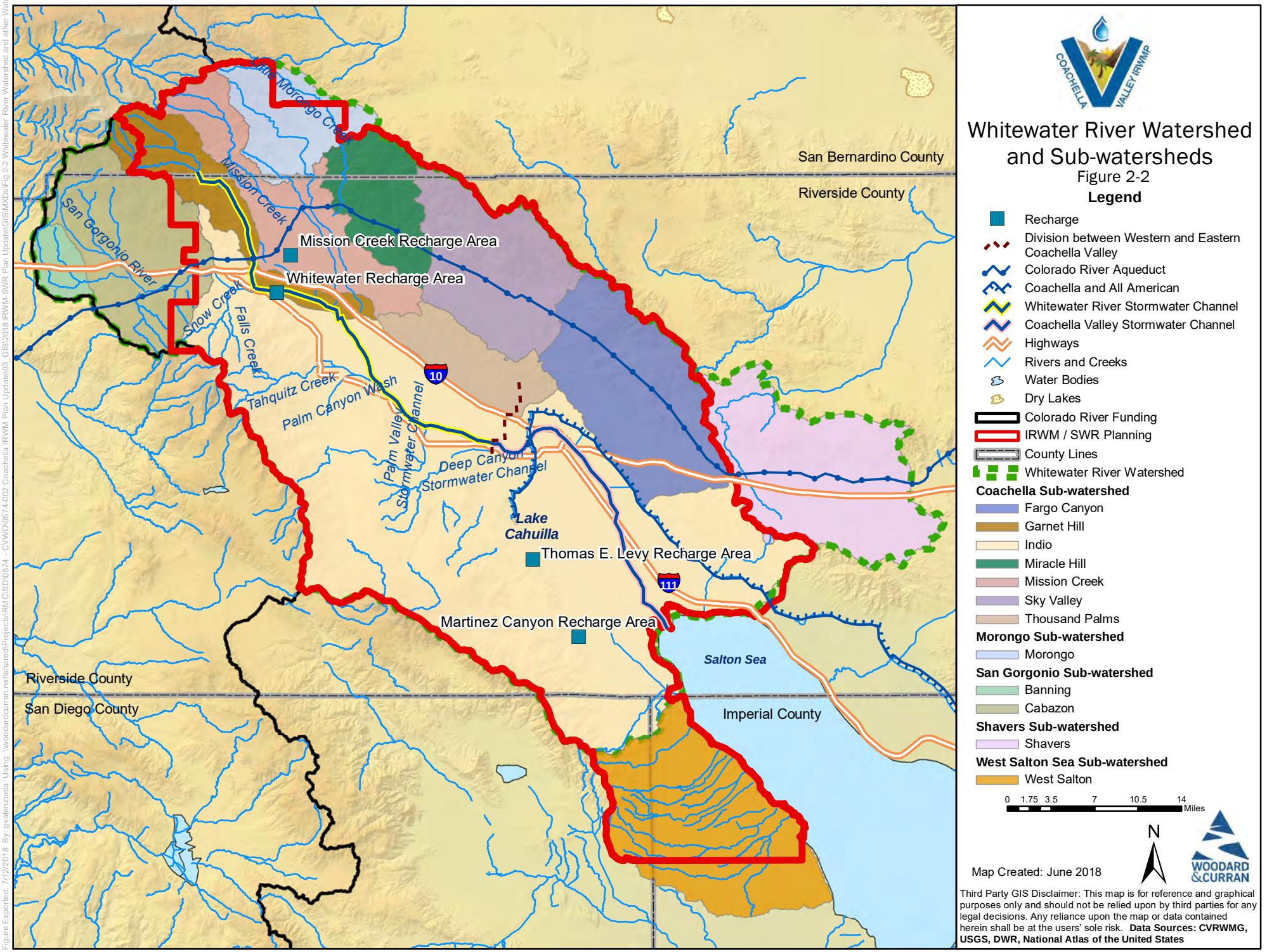
The U.S. Geological Survey (USGS) and the Regional Board's *Water Quality Control Plan for the Colorado River Basin* (Basin Plan) describe the Whitewater Hydrologic Unit[1] (watershed) as beginning 1.5 miles north of the Whitewater River and 3.5 miles upstream from the San Gorgonio River (Regional Board 2006). The drainage area of the watershed is approximately 57.5 mi^2 and includes four hydrologic areas (sub-watersheds): Morongo, Shavers, San Gorgonio, and Coachella. The San Gorgonio sub-watershed contains the Banning and Cabazon HSAs, and the Coachella sub-watershed contains the Garnet Hill, Mission Creek, Miracle Hill, Sky Valley, Fargo Canyon, and Indio HSAs. The Region encompasses the Whitewater River Watershed with the exclusion of the Banning HSA, Cabazon HSA, and a small portion of the Garnet Hill HSA, which comprise the San Gorgonio IRWM Region. An additional area of the watershed not included in the Region is the easternmost Shavers sub-watershed, which was excluded because there is no population and the CVRWMG agencies' service areas do not extend to that area. The Whitewater River watershed and sub-watersheds (HAs and HSAs) are shown in **Figure 2-2**.

The Region is the appropriate scale for SWR planning as its boundaries align with the Whitewater River Watershed's existing stormwater and flood management planning efforts, including the 2013 Municipal Separate Storm Sewer Systems (MS4) permit, the Bacteria Total Maximum Daily Load (TMDL) Implementation Plan (2007), the Whitewater River Region Stormwater Management Plan (revised 2015), and coordinated water quality monitoring efforts. These efforts are described in *Section 2.5.5*.

[1] A hydrologic unit is a drainage area defined by the California Department of Water Resources (DWR) that may include one or more individual sub-watersheds. For purposes of this 2018 Coachella Valley IRWM/SWR Plan, those areas formally designated by DWR as hydrologic units are generally referred to as watersheds, although the terms hydrologic unit and watershed are considered to be synonymous.

The Whitewater River Watershed consists of sparsely populated mountains, desert, and agricultural lands with impervious urban areas. In addition, much of the region is characterized by deposits of bouldery alluvial fans comprised of loosely packed, highly pervious soils. These characteristics provide for high rates of infiltration throughout the watershed, except within the eastern Coachella Valley where several impervious clay layers lie between the ground surface and the main groundwater aquifer (RCFCWCD 2012, CVWD 2012). Natural recharge in the watershed is limited and varies from 8,000 acre-feet per year (AFY) to 200,000 AFY, averaging 57,000 AFY (CVWD 2012). Natural recharge occurs in areas of high permeability such as the Palm Springs Sub-area via infiltration of stream runoff from the San Jacinto Mountains and the Whitewater River, and subsurface inflow from the San Gorgonio Pass and Mission Creek Groundwater Subbasins. Due to the aquitard present in the eastern Coachella Valley, some surface water flows from rainwater do not recharge the groundwater basin, but rather flow into the CVSC and ultimately to the Salton Sea. Meanwhile, with increased development in the Region, natural recharge processes have been disrupted. Urban areas have led to impervious surfaces that generate greater runoff flows and decrease groundwater recharge. To address these changes in watershed processes, stormwater management for several years has been coupled with groundwater recharge efforts to decrease flooding and maintain stable water supply.

The Whitewater River and CVSC form the primary drainage course in the Region, spanning the entire Coachella Valley. The northwestern portion of the Whitewater River is also referred to as the Whitewater River Stormwater Channel (WRSC), and the 17-mile southwestern segment of the River ending at the Salton Sea is referred to as the CVSC. The principal tributaries of the Whitewater River include the San Gorgonio River, Snow Creek, Falls Creek, Chino Creek, Mission Creek, Morongo Creek, Tahquitz Creek, Andreas Creek, Palm Canyon Wash, Deep Canyon Creek, and the Palm Valley Channel. Common beneficial uses of these waters include groundwater recharge, agriculture supply, water-contact recreation, wildlife habitat and warm freshwater habitat. The Whitewater River has ephemeral flow north of Palm Springs, becoming dry as water percolates into the groundwater basin or is diverted for recharge at the Whitewater River Groundwater Recharge Facility (GRF), discussed in *Section 2.2.2 Water Systems and Distribution*. From there, the Whitewater River continues southeast to La Quinta, where it enters the CVSC, the main stormwater channel in the Coachella Valley. With the exception of the 17-mile segment of the CVSC in eastern Coachella Valley, the Whitewater River and most of its tributaries are ephemeral and flows downstream of the Whitewater River GRF are rare (refer to *Section 2.2.2 Water Systems and Distribution* for more information). **Figure 2-2** shows the Whitewater River Watershed, sub-watersheds, and surface waters within the Coachella Valley.



Whitewater River Watershed and Sub-watersheds

Figure 2-2

Legend

- Recharge
- Division between Western and Eastern Coachella Valley
- Colorado River Aqueduct
- Coachella and All American
- Whitewater River Stormwater Channel
- Coachella Valley Stormwater Channel
- Highways
- Rivers and Creeks
- Water Bodies
- Dry Lakes
- Colorado River Funding
- IRWM / SWR Planning
- County Lines
- Whitewater River Watershed

Coachella Sub-watershed

- Fargo Canyon
- Garnet Hill
- Indio
- Miracle Hill
- Mission Creek
- Sky Valley
- Thousand Palms

Morongo Sub-watershed

- Morongo

San Gorgonio Sub-watershed

- Banning
- Cabazon

Shavers Sub-watershed

- Shavers

West Salton Sea Sub-watershed

- West Salton

0 1.75 3.5 7 10.5 14 Miles

N

Map Created: June 2018

Third Party GIS Disclaimer: This map is for reference and graphical purposes only and should not be relied upon by third parties for any legal decisions. Any reliance upon the map or data contained herein shall be at the users' sole risk. **Data Sources: CVRWMG, USGS, DWR, National Atlas of the United States**

Figure Exported: 7/12/2018 By: gvalenzuela Using: \\woodardcurran.net\shared\Projects\RM\CSD\0574 - CVWD\05774-002 Coachella IRWM Plan Update\03_GIS\2018 IRWM-SWR Plan Update\GIS\MXDs\Fig 2-2 Whitewater River Watershed and other Water Features

2.2.2 Water Systems and Distribution

*This section complies with the **Watershed Identification** requirements for the SWRP by describing internal boundaries within the watershed, identifying surface and groundwater resources within the watershed, and describing local entities that provide potable water supplies and estimated volume of potable water provided.*

The Coachella Valley's water supply system is composed of five major water sources:

- Groundwater pumped from the Coachella Valley Groundwater Basin
- Imported SWP water supplies from the Region's SWP allotments obtained by CVWD and DWA and exchanged for Colorado River Water (SWP Exchange water or SWP allotments)
- Non-Potable water supplies provided by Colorado River water
- Recycled wastewater
- Natural surface water from mountain streams

Conservation, source substitution, and groundwater recharge are also important components of the regional water supply system. Each component of the Region's water system and distribution are discussed further below.

Groundwater

Groundwater is the largest source of water supply for the Region. The Coachella Valley Groundwater Basin has an estimated storage capacity of approximately 40 million acre-feet (AF) of water within the upper 1,000 feet. DWR's *Bulletin 118: California's Groundwater* (2004) defines the Coachella Valley Groundwater Basin (No. 7-21) as residing within the Colorado River Hydrologic Region. DWR divides this basin into the following four subbasins: Indio (No. 7-21.01), Mission Creek (No. 7-21.02), Desert Hot Springs (No.7-21.03), and San Gorgonio Pass (No. 7-21.04). The location of the Coachella Valley Groundwater Basin and subbasins are shown in **Figure 2-3**. Please note that **Figure 2-3** also shows the location of the Garnet Hill Subbasin, which although not defined by DWR's Bulletin 118, is an important locally-recognized groundwater subbasin. The San Gorgonio Pass Subbasin lies outside the Regional Boundary and is not highlighted in **Figure 2-3**, but does retain the subbasin number 7-21.04. **Figure 2-3** also includes the West Salton Sea (No. 7-22) groundwater basin, which lies partially within the Region, but outside the Coachella Valley Groundwater Basin, and does not represent a significant water supply source for the Region.

DWR's Bulletin 118 divides the Coachella Valley Groundwater Basin into several subbasins with respect to local geographic and geologic conditions, including the large and active faults that constitute the San Andreas Fault system. The largest of these subbasins is the Indio Subbasin (No. 7-21.01), which is also referred to as the Whitewater River Subbasin and is often described by its western and eastern portions. The western and eastern portions of the Indio Subbasin are also referred to as the West and East Whitewater River Subbasins Management Areas or Areas of Benefit (AOBs) in local planning documents, including the Coachella Valley Water Management Plan (WMP; CVWD 2012), Indio Water Authority's (IWA's) 2012 Water Master Plan Update (IWA 2012), local Urban Water Management Plans (UWMPs), and the Mission Creek-Garnet Hill WMP (CVWD et al. 2013). Groundwater basins and subbasins as described in this IRWM/SWR Plan (local nomenclature) are presented in **Table 2-1** along with the corresponding Bulletin 118 naming conventions, for ease of use when comparing local nomenclature to Bulletin 118. As

demonstrated in **Table 2-1,** part of the reason that local nomenclature differs from Bulletin 118 nomenclature is that, locally, the Region's groundwater basins are recognized at a smaller scale compared to Bulletin 118 nomenclature, which recognizes larger groundwater basins with fewer groundwater subbasin designations.

Geographically, the East Whitewater River Subbasin is the portion of the subbasin in the eastern Coachella Valley and the West Whitewater River Subbasin is in the western Coachella Valley (shown on **Figure 2-3** by the dashed line representing the division between western and eastern Coachella Valley running through the Thermal and Thousand Palms subbasin areas). **Figure 2-3** also shows locally-recognized divisions of the four Coachella Valley subbasins, which are primarily divided along local fault lines.

Table 2-1: Groundwater Subbasins and Sub-Areas in the Coachella Valley Groundwater Basin[1]

DWR Bulletin 118		Coachella Valley IRWM/SWR Plan		
Basin Number	**Basin Name**	**Basin Name**	**Subbasin Name**	
7-21.01	Indio	Whitewater River	West Whitewater River Subbasin Management Area or Area of Benefit	Palm Springs
				Indio Hills
				Thousand Palms
				Thermal (Western Coachella Valley)[2]
			East Whitewater River Subbasin Management Area or Area of Benefit	Thermal (Eastern Coachella Valley)[2]
				Oasis
				Barton Canyon
		Garnet Hill	Garnet Hill	
7-21.02	Mission Creek	Mission Creek	Mission Creek	
7-21.03	Desert Hot Springs	Desert Hot Springs	Miracle Hill	
			Sky Valley	
			Fargo Canyon	
			Mecca Hills	
7-22	West Salton Sea	West Salton Sea	West Salton Sea	

1. A groundwater breakdown for both the Indio and Mission Creek Subbasins are located in the SGMA Annual Reports located at http://www.cvwd.org/357/Sustainable -Groundwater-Management-Act.
2. Thermal Subarea is located in both the West and East Whitewater River Subbasins, which are divided along the eastern Coachella Valley-western Coachella Valley division of the Coachella Valley (see Figure 2-3)

DWR's *Bulletin No. 108: Coachella Valley Investigation* (1964) provides a detailed description of the physical characteristics of the Coachella Valley Groundwater Basin and its subdivisions and contains an inventory of the surface and underground water resources within the basin. Further, CVWD's 2010 Coachella Valley WMP Update and Programmatic Environmental Impact Report (EIR) provide a comprehensive evaluation of the Coachella Valley Groundwater Basin.

Basin inflows include natural recharge from mountain runoff, artificial recharge with imported water from SWP allotments or water from the Colorado River, flows from outside the groundwater basin, return flows from urban over-irrigation, agricultural drainage, and non-consumptive return. Basin outflows include groundwater pumping (largest outflow according to Bulletin 118), evapotranspiration, flows to the Salton Sea, and flows to subsurface drains (which also flow to the Salton Sea).

Almost all domestic water served by the local water purveyors is obtained locally from wells drilled into the Coachella Valley's vast groundwater basin. The five CVRWMG water purveyors, Myoma Dunes Mutual Water Company (Myoma Dunes MWC), and hundreds of other pumpers share the basin. Myoma Dunes MWC is a private water company that provides domestic water services to a portion of the Bermuda Dunes community.

Recent annual pumping volumes by water purveyor are as follows (CVWD 2016a, DWA 2016, IWA 2016, MSWD 2016, CWA 2016):

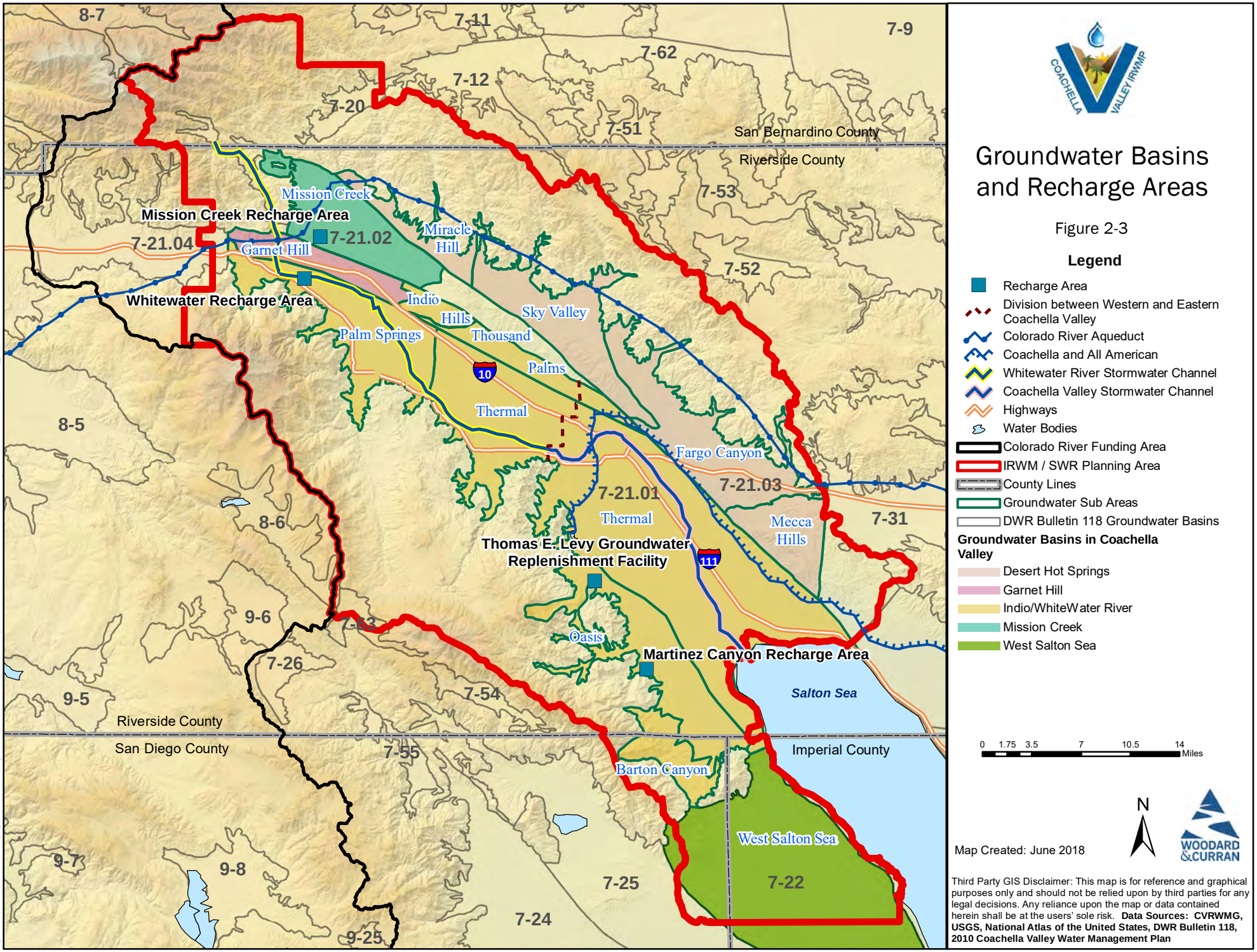
- CVWD: 92,974 AFY from approximately 96 wells
- DWA: 28,849 AFY from 27 wells
- IWA: 18,208 AFY from 10 wells
- MSWD: 7,252 AFY from 15 wells
- CWA: 2,128 AFY from 6 wells
- Myoma Dunes: 3,324 AFY from 5 wells
- Total Water Purveyor Pumping: 152,735 AFY

2016 pumping volumes by water purveyors are included in the *2017 Engineer's Report on Water Supply and Replenishment Assessment* for each of the six groundwater subbasin areas of benefit (AOBs). Within CVWD's service area are the East Whitewater River Subbasin AOB, West Whitewater River Subbasin AOB, and Mission Creek Subbasin AOB (CVWD 2017). CVWD pumps from all three subbasin AOBs, while IWA and Coachella Water Authority (CWA) pump from the East Whitewater River Subbasin AOB. DWA pumps from the West Whitewater River Subbasin AOB, and MSWD pumps from the Mission Creek Subbasin AOB.

- East Whitewater River Subbasin AOB: 111,925 AFY
- West Whitewater River Subbasin AOB: 148,442 AFY
- Mission Creek Subbasin AOB: 13,219 AFY

Due to the role of the Coachella Valley Groundwater Basin as the Region's principal source of water, this resource has been comprehensively managed since the early 1900s. In 1934, in response to declining groundwater levels, the Region (CVWD) first contracted with the Federal Government to obtain Colorado River Water via the All American Canal and the Coachella Canal to supplement the Region's water supply (CVWD 2012). The Coachella branch of the All-American Canal (Coachella Canal) was completed in 1949 and the first deliveries of the Colorado River water to the Coachella Valley began in that year. In the 1960s, both CVWD and DWA entered into separate agreements with the State of California (State) to purchase additional imported water from the SWP (CVWD 2012). Although all water that is imported into the Coachella Valley is delivered from the Colorado River, water exchanged with the Metropolitan Water District of Southern California (MWD) comes from SWP allotments held by CVWD and DWA and is referred to as SWP Exchange water or SWP allotments. Due to the distance of SWP conveyance facilities from the Coachella Valley, CVWD and DWA completed a water exchange agreement with MWD to

exchange an equal amount of Colorado River water for their respective SWP water allocations (CVWD 2012). Deliveries of imported water as they relate to groundwater recharge are described in the following section, and relevant facilities are shown on **Figure 2-3**.



Groundwater Basins and Recharge Areas

Figure 2-3

Legend

- Recharge Area
- Division between Western and Eastern Coachella Valley
- Colorado River Aqueduct
- Coachella and All American
- Whitewater River Stormwater Channel
- Coachella Valley Stormwater Channel
- Highways
- Water Bodies
- Colorado River Funding Area
- IRWM / SWR Planning Area
- County Lines
- Groundwater Sub Areas
- DWR Bulletin 118 Groundwater Basins

Groundwater Basins in Coachella Valley

- Desert Hot Springs
- Garnet Hill
- Indio/WhiteWater River
- Mission Creek
- West Salton Sea

0 1.75 3.5 7 10.5 14 Miles

N

Map Created: June 2018

Third Party GIS Disclaimer: This map is for reference and graphical purposes only and should not be relied upon by third parties for any legal decisions. Any reliance upon the map or data contained herein shall be at the users' sole risk. **Data Sources: CVRWMG, USGS, National Atlas of the United States, DWR Bulletin 118, 2010 Coachella Valley Water Management Plan**

Figure Exported: 7/11/2018 By: gvalenzuela Using: \\woodardcurran.net\shared\Projects\RMC\SD\0574 - CVWD\0574-002 Coachella IRWM Plan Update\03_GIS\2018 IRWM-SWR Plan Update\GIS\MXDs\Fig 2-3 Groundwater Basins and Recharge Areas.mxd

Recharge Areas

Natural recharge to the Region's groundwater basins is attributed to surface runoff and subsurface inflow. Natural recharge in the Region is estimated to be only a fraction of the annual pumping – natural recharge averages 60,000 acre-feet per year (AFY) but can vary from as low as 8,000 AFY to 200,000 AFY. Recent years have experienced a less than average rate of natural recharge, approximately 50,000 AFY on average from 2003-2012. The bulk of groundwater recharge takes place through artificial means (CVWD 2012). There are three operating recharge facilities in the Region, two of which are located within the Whitewater River Subbasin, and one which is located within the Mission Creek Subbasin (see **Figure 2-3** and **Table 2-2**).

Whitewater River Subbasin Replenishment

CVWD operates and maintains two groundwater recharge facilities in the Whitewater River Subbasin, one of which is jointly operated with DWA. These facilities recharge both surface water runoff and imported water. CVWD implemented an additional recharge facility, the Martinez Canyon Pilot Recharge Project, to increase recharge to the Whitewater River Subbasin with Coachella Canal water; however, in 2013, it was determined that the site was not ideally suited for groundwater replenishment and deliveries were discontinued. CVWD continues to monitor the site and may evaluate alternative locations (CVWD 2017). The following are the two active recharge facilities in the Whitewater River Subbasin.

- **Whitewater River Groundwater Replenishment Facility** recharges SWP Exchange Water from regional SWP allotments and captures stormwater, with historical peak recharge of 385,995 AF in 2017 and an average annual recharge goal of 100,000 AFY. Since operation of this facility began in 1973, approximately 3,318,183 AF has been recharged. From 2010 to 2017, the average amount of water delivered to the Whitewater River Groundwater Replenishment Facility was 146,315 AF with a maximum of 385,994 AF in 2017, and a minimum of 865 AF in 2015. The facility has a recharge capacity of over 450,000 AFY (CVWD 2017).
- **Thomas E. Levy Groundwater Replenishment Facility** recharges water obtained from the Coachella Canal and has a recharge capacity of 40,000 AFY. In 2017, this facility had accomplished recharge of 34,614 AFY of Colorado River water and had resulted in recharge of 343,398 AF of water since 1997 (CVWD 2017).

SWP Exchange Water from regional SWP allotments, Colorado River allotments delivered by the Colorado River Aqueduct and the Coachella Canal, and water recharged to the Whitewater River Subbasin by the aforementioned facilities help reduce overdraft in the Region.

Mission Creek Subbasin Replenishment

CVWD and DWA jointly operate and maintain the following recharge facility to replenish the Mission Creek Subbasin with imported water:

- In addition to the two facilities that recharge the Whitewater River Subbasin, the **Mission Creek Spreading Facility** is located in the Mission Creek Subbasin and recharges SWP Exchange Water. Since operation of this facility began in 2002, approximately 159,562 AF has been recharged; recharge from the facility has ranged from 0 AFY to 33,210 AFY, with 2017 recharge equaling 9,249 AF (CVWD et al. 2013; CVWD 2017).

In addition to these three existing groundwater recharge facilities, Phase I of CVWD's Palm Desert GRF, which has a capacity of 10,000 AFY, is currently under construction and is expected to begin operating in December 2018. Phase II is currently in the design stage and will increase the capacity of the Palm Desert GRF by 15,000 AFY for a total capacity of 25,000 AFY.

Table 2-2: Groundwater Subbasins and Corresponding Recharge Areas

Bulletin 118 Basin Name (Basin No.)	Subbasins	Groundwater Storage Capacity (AF)[3]	Recharge Areas
Indio (7-21.01), Whitewater River Subbasin	West Whitewater River Subbasin Management Area		
	Palm Springs Sub-Area Indio Hills Sub-Area	4,600,000	Whitewater River GRF
	Thousand Palms Sub-Area	1,800,000	Whitewater River GRF
	East Whitewater River Subbasin Management Area		
	Oasis Sub Area Barton Canyon Sub Area	3,000,000	Thomas E. Levy GRF
	Thermal Sub Area[1]	19,400,000	Thomas E. Levy GRF
Garnet Hill	Garnet Hill Sub Area	1,000,000	Mission Creek GRF Being Studied
Mission Creek (7-21.02)	Mission Creek	2,600,000	Mission Creek GRF
Desert Hot Springs (7-21.03)	Miracle Hill Sub Area Sky Valley Sub Area Fargo Canyon Sub Area Mecca Hills Sub Area	4,100,000	N/A
West Salton Sea (7-22)	West Salton Sea	Unknown[4]	N/A[2]

1. The Thermal Sub-Area is located in the eastern Coachella Valley and the western Coachella Valley
2. The West Salton Sea Subbasin lies predominantly outside the Coachella Valley IRWM Region; DWR characterizes this groundwater basin as predominantly sodium chloride (salt).
3. *Source: CVWD 2011*
4. *Source: DWR 2003*

Overdraft Conditions

As a result of the Region's various groundwater management efforts, groundwater levels stabilized through the 1970s and early 1980s (CVWD 2012). Since the 1980s, increased pumping has caused water levels in the Coachella Valley to decline despite ongoing groundwater management efforts.

In 2009, CVWD estimated that the annual loss in groundwater storage due to overdraft was 23,912 acre-feet (AF) for the East Whitewater River Subbasin Management Area (eastern Coachella Valley), 48,139 AF for the West Whitewater River Subbasin Management Area (western Coachella Valley), and that from 2000 to 2009 there was an average annual groundwater storage loss of 110,000 AFY in the Whitewater

River Subbasin (CVWD 2012). Since 2009, the 10-year average change in storage has been positive, with an upward trend from 2009 -2017 (CVWD 2017).

Between 1980 and 2000, groundwater overdraft caused groundwater levels to decrease more than 60 feet in portions of the eastern Coachella Valley and raised significant concern about water quality degradation and land subsidence in this area. Recently, however, reduced pumping in the eastern Coachella Valley along with recharge at the Thomas E. Levy GRF has resulted in an average groundwater level increase of 39 feet in the eastern Coachella Valley and a partial return to artesian flow in the vicinity of Mecca. Groundwater levels in the western Coachella Valley have decreased substantially between 1980 and 2000, except in the areas near the Whitewater River GRF where artificial recharge has successfully raised water levels. Since 2000, declines have decreased or have been replaced with increases in some areas of the Coachella Valley. Despite this decline, areas lacking a clay layer are less likely to experience subsidence. This includes areas overlying the Mission Creek or Garnet Hill Subbasin (CVWD et al. 2013).

Continued overdraft would have significant consequences for the Coachella Valley, including:

- increased costs to pump water and deepen wells
- land subsidence in some areas with resultant potential for ground fissures and damage to buildings, homes, sidewalks, streets, wells, and buried pipelines
- water quality degradation in some areas, which includes increased salinity from Salton Sea intrusion and perched water intrusion

The Coachella Valley WMP calls for elimination of overdraft by about 2030. Through a combination of conservation, recharge, and source substitution, the Region seeks to halt and slowly reverse the trend of groundwater overdraft. Due to efforts made to recharge groundwater in the Coachella Valley, it is anticipated that long-term groundwater overdraft will be eliminated by 2022 with increased groundwater levels in the Palm Springs area and the eastern Coachella Valley, which exceeds the goal set by the Coachella Valley WMP to eliminate overdraft by 2030. However, groundwater levels in the mid-Coachella Valley area will continue to decline until programs are implemented in this area to reduce groundwater pumping. Programs and tools used to reduce groundwater pumping include reducing water use through water conservation efforts and developing additional water supplies (CVWD 2017b).

Coachella Valley agencies continue to implement programs to increase groundwater recharge and reduce groundwater pumping to continue on the trajectory to eliminate groundwater overdraft ahead of set goals. While the Region believes these projections to be reasonable and attainable, actual changes in storage depend heavily on SWP Exchange water deliveries (based on SWP allocations), which can vary from year to year.

Imported Water

To address the potentially significant consequences of groundwater overdraft, the Region has developed imported water supplies to supplement and replenish groundwater supplies. CVWD and DWA are SWP Contractors and have obtained Table A Allotments delivered via exchange with MWD for delivery through the Colorado River Aqueduct. In addition, CVWD is a Colorado River Contractor and has obtained secure Colorado River allocations delivered via the Coachella Canal. The SWP Exchange supplies and Coachella Canal water sources are described in further detail below. **Figure 2-4** provides a statewide map of imported water aqueducts relevant to water management in the Region.

SWP Exchange Water

CVWD and DWA are SWP contractors, but the Coachella Valley has no direct physical connection to SWP water, and costs associated with constructing an additional SWP aqueduct to the Coachella Valley have been estimated at $1.0 to $1.5 billion based on 2011 dollars (CVWD 2011). Therefore, CVWD and DWA receive their SWP allotments via MWD's Colorado River Aqueduct, which originates near Parker Dam at Lake Havasu on the Colorado River and terminates at Lake Matthews. The aqueduct traverses the Region and has two turnout locations in the Coachella Valley for recharge of the groundwater basin. The first turnout is located near Highway 62 at the Mission Creek Spreading Area for recharge of the Mission Creek Subbasin. The second is located just north of the intersection of the Whitewater River and Interstate 10 for recharge of the aquifer at the Whitewater River GRF, which outflows to the Whitewater River Subbasin (refer to **Figures 2-3** and **2-4**).

SWP Exchange water deliveries to the Coachella Valley occur due to a series of exchange and delivery agreements that CVWD and DWA have with MWD. These agreements are explained in the following paragraphs.

In 1973, CVWD and DWA entered into an Exchange Agreement with MWD for delivery of SWP Exchange water to replenish groundwater in the Whitewater River Subbasin. The same agencies executed an Advance Delivery Agreement in 1983, which allows MWD to store up to 600,000 AF of water in the Whitewater River Subbasin and was subsequently amended to increase the maximum pre-delivery quantity to 800,000 AF. The agreement was updated in 2003 during which time MWD assigned 11,900 AF of its annual SWP Table A allocation to DWA, and 88,100 AF of its annual SWP Table A allocation to CVWD, for a total of 100,000 AF (SWP Table A is an entitlement schedule set forth for SWP water supplies on an annual basis). MWD retained the option to call-back or recall a portion of the assigned water allocations at a cost, in accordance with specific conditions. To date, MWD has only exercised this option once, in 2005.

CVWD and DWA executed the Mission Creek Groundwater Replenishment Agreement in April 2003, which also allowed for storage of advanced deliveries from MWD. CVWD, MSWD, and DWA recently developed the Mission Creek-Garnet Hill Water Management Plan (Mission Creek-Garnet Hill WMP) to address subbasin issues (CVWD et al. 2013).

Through a variety of agreements, CVWD and DWA have also acquired additional SWP Table A amounts to their respective SWP Table A allotments. The combined CVWD and DWA Table A allotment is now 194,100 AFY (refer to **Table 2-3** below).

MWD, CVWD, and DWA have studied the feasibility of extending the California Aqueduct to deliver SWP supplies to the Coachella Valley. However, as mentioned previously, capital costs associated with an aqueduct extension may be prohibitive.

Table 2-3: SWP Table A Allotments in Acre-Feet

	Original SWP Table A	Tulare Lake Basin Transfer #1	Tulare Lake Basin Transfer #2	MWD Transfer	Berrenda Mesa Transfer	Total
CVWD	23,100	9,900	5,250	88,100	12,000	**138,350**
DWA	38,100	-	1,750	11,900	4,000	**55,750**
Total	**61,200**	**9,900**	**7,000**	**100,000**	**16,000**	**194,100**

Source: CVWD 2012

Colorado River Supply via Coachella Canal

Colorado River water supplies have been secured by a series of interstate compacts and federal legislation known as the *Law of the River* (CVWD 2012). To quantify its secure Colorado River water allocations, CVWD entered into the Quantification Settlement Agreement (QSA) and twelve related agreements with Imperial Irrigation District (IID), MWD, San Diego County Water Authority, the State of California, and the U.S. Department of the Interior. The QSA enables California to reduce its historic overdependence on Colorado River water to its 4.4 million AF basic annual apportionment through agriculture-to-urban water transfers and other water supply programs. The QSA quantifies CVWD's Colorado River water allotment of 459,000 AFY by 2026.

The Coachella Canal originates 20 miles west of Yuma, Arizona at "Drop 1" of the All American Canal and conveys Colorado River water 123 miles northwest along the western boundary of the Region to a man-made storage reservoir, Lake Cahuilla. The Coachella Canal conveys flow by gravity and is concrete-lined to prevent seepage loss. The water provided by the Coachella Canal is considered an important part of the Region's groundwater management plan as it provides non-potable water that helps reduce groundwater overdraft via in-lieu groundwater pumping (CVWD 2016a). Along its route, the Coachella Canal distributes non-potable Colorado River water for irrigation to approximately 73,000 acres of agricultural land in the eastern Coachella Valley through nearly 500 miles of buried delivery laterals. The Coachella Canal also provides non-potable irrigation water to several Coachella Valley golf courses along the canal and via the Mid-Valley Pipeline. Lake Cahuilla, at the terminus of the Coachella Canal, was built by CVWD in 1968 to provide operational storage for imported Colorado River water.

Further information about the Mid-Valley Pipeline and the Region's non-potable water system are provided below in *Section 2.2.4 Non-Potable Water*.

Surface Water

Surface waters of the Region consist of the Whitewater River and principal tributaries, as discussed under *Section 2.2.1 Watershed*. East of Washington Street, the Whitewater River enters a man-made channel to convey stormwater and flood flows safely through the eastern Coachella Valley to the Salton Sea, as shown in **Figure 2-2**. This portion of the stormwater channel is referred to as the CVSC. Surface waters within the Coachella Valley are also shown in **Figure 2-2**.

DWA receives about 5% of its water supply (or 1,800 AFY) through surface water sources, including Chino Creek, Snow Creek, and Falls Creek (DWA 2016). These creeks are all tributary to the Whitewater River. CVWD also conveys mountain runoff from the Whitewater River Canyon near Windy Point to the Whitewater River GRF Facility for groundwater recharge. In addition, the Agua Caliente Band of Cahuilla

Indians may divert surface water supplies from Tahquitz Creek, Andreas Creek, and the Whitewater River. Surface water that is not diverted for beneficial use by the Tribe is put to other beneficial uses such as groundwater storage for municipal and agricultural uses.

Statewide Imported Water Systems

Figure 2-4

Legend

- Aqueducts
- Coachella and All American Canals
- Rivers and Creeks
- Water Bodies
- Dry Lakes
- Colorado River Funding Area
- IRWM / SWR Planning Area

0 10 20 40 60 80 Miles

N

Map Created: June 2018

Third Party GIS Disclaimer: This map is for reference and graphical purposes only and should not be relied upon by third parties for any legal decisions. Any reliance upon the map or data contained herein shall be at the users' sole risk. **Data Sources: CVRWMG; USGS; National Atlas of the United States**

Figure Exported: 6/19/2018 By: gvalenzuela Using: \\woodardcurran.net\shared\Projects\RM\CSD\0574 - CVWD\05574-002 Coachella IRWM Plan Update\03_GIS\2018 IRWM-SWR Plan Update\GIS\MXDs\Fig 2-4 Statewide Imported Water Systems.mxd

Distribution Systems

Water supply for the Coachella Valley is generally pumped from the subbasins of the Coachella Valley Groundwater Basin. Water is pumped from many wells around the Region and into each agency's individual distribution system. Below is a breakdown of the water supplied by each water purveyor (CVRWMG 2009, CVWD 2016, DWA 2016, CWA 2016, IWA 2016, and MSWD 2016):

- **CVWD** provides approximately 93,000 AFY to over 290,000 residents through 107,358 active meters. CVWD's water supply system has about 30 pressure zones and is made up of approximately 96 deep wells, 2,000 miles of pipe, and 135 million gallons of reservoir storage in 61 reservoirs.
- **DWA** pumps groundwater via 27 active wells and has a water supply system that contains up to 12 pressure zones. DWA domestic service includes about 23,000 active services through roughly 400 miles of pipeline and serves about 62,200 year-round residents, and 106,000 residents total (total population includes seasonal residents). The agency utilizes 28 reservoirs with the capacity of 59 million gallons and has an annual water production of approximately 28,000 AF.
- **CWA** operates a domestic water system that provides approximately 2,128 AFY of potable groundwater to approximately 41,000 residents in the City of Coachella. The pressurized pipeline distribution system has 2 pressure zones and consists of 120 miles of pipeline, 6 active groundwater wells and 10.5 million gallons of reservoir storage in 3 enclosed, welded-steel reservoirs.
- **IWA** has about 22,560 active connections within its system. IWA provides approximately 18,208 AFY to 75,847 residents. The system consists of 4 pressure zones and 7 reservoirs with a storage capacity of 19 million gallons, 10 wells, 6 pumping plants, and 326 miles of distribution pipelines.
- **MSWD** provides water to residential and commercial customers through three independent distribution systems that include 15 active wells. Water is distributed to about 12,970 connections through 239 miles of pipeline to approximately 37,600 residents. There are 20 reservoirs that have storage capacity of 20 million gallons.

2.2.3 Wastewater

*This section complies with the **Watershed Identification** requirements for the SWRP by mapping internal boundaries within the watershed.*

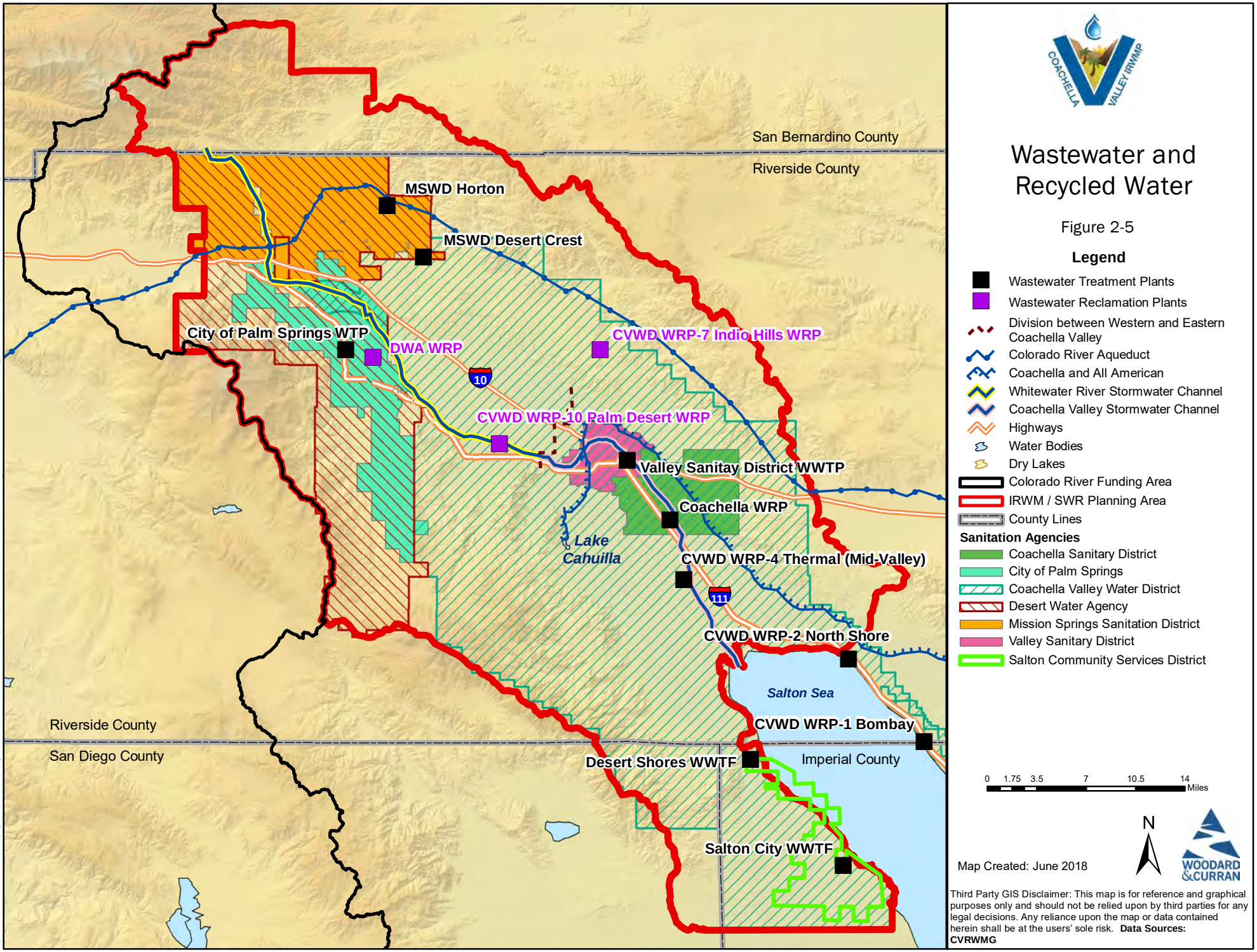
The Region encompasses seven sanitation service areas, with a total of thirteen wastewater treatment plants (WWTPs) (see **Figure 2-5**). Of the thirteen WWTPs, three of these plants currently produce recycled water (tertiary-treated water in accordance with Title 22 of the California Code of Regulations), shown in purple in **Figure 2-5**. It is anticipated that two more of the eleven wastewater treatment plants will produce recycled water in the future, but this is contingent upon increased recycled water demands and available funding necessary to upgrade those plants to tertiary treatment (CVWD 2012). Recycled water usage in the Coachella Valley has increased from about 500 AFY in 1965 to approximately 14,000 AFY in 2015 (CVRWMG 2009, CVWD 2016a, DWA 2016, CWA 2016, IWA 2016, and MSWD 2016). The Regional Boundary sanitation service areas are shown on **Figure 2-5**.

The seven sanitation service areas and the wastewater treatment facilities that serve Coachella Valley residents include (CVRWMG 2009; CVWD 2016a; DWA 2016; CWA 2016; IWA 2016; and MSWD 2016):

- **City of Coachella** (Coachella Sanitary District) operates a 4.5 million gallons per day (mgd) WWTP and discharges approximately 2.7 mgd of secondary-treated wastewater effluent to the CVSC.
- **City of Palm Springs** operates a sewer collection system and a 10.9 mgd secondary treatment facility. Treated effluent is either transferred to DWA's reclamation plant where it is treated to tertiary levels and recycled or treated to secondary levels and discharged into percolation ponds for disposal.
- **DWA** receives secondary-treated wastewater from Palm Springs and is also responsible for providing wastewater conveyance service to additional residents within the City of Palm Springs, Cathedral City, and portions of unincorporated Riverside County. City of Palm Springs wastewater flows are sent to DWA's 10.0 mgd WWTP where they are treated to tertiary levels and used for landscape irrigation.
- **CVWD** operates a total of five treatment plants with a total capacity of 30.6 mgd. CVWD operates two water reclamation plants (WRP-7, and WRP-10) which treat to tertiary levels and distribute approximately 8.0 mgd of recycled water for golf course and municipal irrigation. One WWTP (WRP-4) discharges effluent to the CVSC, and two small plants (WRP-1 and WRP-2) discharge effluent into evaporation/percolation ponds for disposal.
- **MSWD** operates two WWTPs (Horton Wastewater Plant and Desert Crest Wastewater Plant) with a combined capacity of 2.7 mgd. Effluent from both plants is discharged to percolation ponds for disposal. MSWD is currently in design for a new wastewater treatment plant, the West Valley Water Reclamation Facility, with an initial treatment capacity of 1.5 mgd. While surface spreading of effluent is currently proposed, MSWD anticipated adding tertiary treatment in a subsequent phase. In addition, MSWD is preparing a Recycled Water Feasibility Study to evaluate cost effective recycled water projects for implementation.
- **Valley Sanitary District** (VSD) utilizes a 12.5 mgd capacity WWTP that services a majority of City of Indio customers, and discharges approximately 6.0 mgd of effluent to the CVSC. VSD and IWA entered into a Memorandum of Understanding (MOU) to form a Joint Powers Authority in an effort to develop a water reclamation facility for recycled water use to include landscape irrigation and other uses. Next steps include completing the final feasibility study, financial planning, preliminary engineering studies, and securing funding sources (VSD 2017).
- **SCSD** operates the Salton City WWTP, which serves the unincorporated community of Salton City and has the capacity to treat 0.25 mgd. SCSD also operates the Desert Shores WWTP, which serves the unincorporated community of Desert Shores and has the capacity to treat 0.20 mgd. Both of these facilities dispose of effluent through evaporation and percolation.

Several of the local wastewater treatment facilities discharge effluent to percolation ponds. CVWD and the City of Palm Springs discharge secondary treated effluent to percolation ponds in the western Coachella Valley when the demand for recycled water is low in winter months. DWA uses influent and effluent reservoirs to store water during peak supply.

MSWD and SCSD discharge secondary treated effluent to percolation ponds for final disposal. Due to the aquitard that is present in the eastern Coachella Valley, CVWD, CWA, and VSD discharge secondary-treated effluent that has been chlorinated and then dechlorinated to the CVSC, which conveys flows to the Salton Sea.



Wastewater and Recycled Water

Figure 2-5

Legend

- Wastewater Treatment Plants
- Wastewater Reclamation Plants
- Division between Western and Eastern Coachella Valley
- Colorado River Aqueduct
- Coachella and All American
- Whitewater River Stormwater Channel
- Coachella Valley Stormwater Channel
- Highways
- Water Bodies
- Dry Lakes
- Colorado River Funding Area
- IRWM / SWR Planning Area
- County Lines

Sanitation Agencies

- Coachella Sanitary District
- City of Palm Springs
- Coachella Valley Water District
- Desert Water Agency
- Mission Springs Sanitation District
- Valley Sanitary District
- Salton Community Services District

0 1.75 3.5 7 10.5 14 Miles

N

Map Created: June 2018

Third Party GIS Disclaimer: This map is for reference and graphical purposes only and should not be relied upon by third parties for any legal decisions. Any reliance upon the map or data contained herein shall be at the users' sole risk. **Data Sources: CVRWMG**

Figure Exported: 7/11/2018 By: gvalenzuela Using: \\woodardcurran.net\shared\Projects\RMC\SD\0574 - CVWD\0574-002 Coachella IRWM Plan Update\03_GIS\2018 IRWM-SWR Plan Update\GIS\MXDs\Fig 2-5 Wastewater and Recycled Water.mxd

Wastewater Treatment

The City of Coachella's Sanitary District (CSD) currently operates one secondary-treatment wastewater facility, although the City is participating in a recycled water feasibility study with MSWD and IWA to determine the potential for recycled water within the City of Coachella (CWA 2016).

The City of Palm Springs's WWTP was built in 1960, and as such needs various retrofits. In April 2010, the Palm Springs City Council approved various actions relating to the City's WWTP, including approval of the City of Palm Springs WWTP Capital Repair and Rehabilitation Plan. As of July 2018, about 88% of these improvements (by cost) had been completed (City of Palm Springs 2013).

DWA currently operates one 10 mgd water reclamation plant that provides tertiary treatment for recycled water. The agency operates a sewer collection system, but transfers collection to CVWD and the City of Palm Springs for treatment.

CVWD's Mid-Coachella Valley Water Reclamation Plant No. 4 (WRP-4) located near Thermal, became operational in 1986 and allows CVWD to serve communities from La Quinta to Mecca. Currently this plant, along with similar facilities near Palm Desert, Thermal, North Shore, Bombay Beach, and Thousand Palms, allows CVWD to provide sanitation service to most of the areas that it serves with domestic water. WRP-1 and WRP-2 are both small treatment plants serving their nearby communities of Bombay Beach and North Shore, respectively. WRP-7, and WRP-10, along with WRP-4, treat most of the wastewater in CVWD's service area. WRP-7 and WRP-10 produce tertiary water for use in golf course and municipal irrigation (CVWD 2017).

MSWD operates two plants, the Horton WWTP and Desert Crest WWTP that provide secondary treated wastewater. The Horton WWTP has been expanded four times and its current capacity is 2.3 mgd. Desert Crest WWTP produces much less, with a capacity of 0.18 mgd (MSWD 2016). MSWD has begun design of the West Valley Water Reclamation Facility (WRF) to meet future treatment needs in the MSWD service area. While surface spreading of effluent is currently proposed, MSWD anticipated adding tertiary treatment in a subsequent phase. The West Valley WRF is anticipated to be operational in 2019 with an initial capacity of 1.5 mgd.

VSD's WWTP, located in Indio, treats water to a secondary level at a rate of 6.0 mgd (total capacity of 12.5 mgd). Post-treatment water is conveyed to the CVSC (VSD 2017). IWA and VSD recently entered into an MOU to form a JPA in an effort to develop a water reclamation facility for recycled water use to include landscape irrigation and other uses. Next steps include completing the final feasibility study, financial planning, preliminary engineering studies, and securing funding sources (VSD 2017). The next scheduled VSD plant upgrade will replace old equipment, add redundancy and modernize the plant. No increase in plant capacity is planned with the next upgrade.

SCSD renovated the Salton City WWTP in 2008 in response to increases in the amount of wastewater flows in SCSD's service area. SCSD intends to compose a Master Sewer Plan to address future projected wastewater flows and could potentially expand the Salton City WWTP to 0.5 mgd to address future wastewater needs in its service area. A 2009 preliminary engineering feasibility report was produced to consider the possible construction of a tertiary wastewater treatment facility (SCSD 2010).

Table 2-4 below provides a summary of the WWTPs and the secondary treatment capacity of each facility.

Table 2-4: Summary of Wastewater Treatment Plants

Facility	Agency	Location	Secondary Treatment Capacity (mgd)
CSD	Coachella Sanitary District	Coachella	4.5
WRP-1	CVWD	Bombay Beach	0.15
WRP-2	CVWD	North Shore	0.18
WRP-4	CVWD	Thermal (Mid-Coachella Valley)	9.9
WRP-7	CVWD	Indio Hills	5.0
WRP-10	CVWD	Palm Desert	18
Horton	MSWD	Desert Hot Spring	2.3
Desert Crest	MSWD	Unincorporated, County land	0.18
VSD	VSD	Indio	12.5
Palm Springs	City of Palm Springs	Palm Springs	10.9
Salton City	SCSD	Salton City	0.25
Desert Shores	SCSD	Desert Shores	0.20
Total			**64.06**

Sources: CWA 2016; CVWD 2016a; CVWD 2012; MSWD 2016; IWA 2016; SCSD 2010; CVWD 2016

Despite the Region's expansive wastewater collection and treatment facilities, many Coachella Valley residents rely upon septic systems for wastewater treatment. Other residents, particularly in the eastern Coachella Valley rely upon open wastewater lagoons. Flows from septic systems that are located within the western Coachella Valley may recharge the groundwater basin, while flows from septic systems in the shallow aquifer of the eastern Coachella Valley do not readily percolate due to high groundwater levels and have the potential to migrate to agricultural drains and eventually to the Salton Sea. Therefore, septic systems located in the western Coachella Valley have the potential to add nitrates or contaminates to the local groundwater basin while those located in the eastern Coachella Valley have the potential to add nitrates or contaminates to the Salton Sea. In order to address potential water quality issues associated with septic systems and increase the amount of water that can be sent to local water treatment plants and beneficially reused, many entities in the Region are pursuing septic-to-sewer conversion projects. For example, in 2004 MSWD approved the formation of a $58 million sewer assessment district (AD12), which is designed to remove existing septic tank systems and finance the costs of additional improvement to the sewer system. MSWD has continued to implement its Groundwater Quality Protection Program and received Proposition 84 Rounds 1 and 2 grant funding to consolidate Subareas D-1 and D-2, which replaced approximately 563 on-site septic systems, and Proposition 1 Disadvantaged Community Involvement (DACI) grant funding to consolidate Areas H and I to serve approximately 445 residents currently using on-site septic systems and an additional 231 vacant parcels. Additionally, in 2017, MSWD approved formation of an additional sewer assessment district (AD15) and is evaluating two other sewer assessment districts to continue removing on-site septic systems throughout its service area. Within DWA's service area, the City of Cathedral City has secured grants and assessment districts to fund the costs of septic to sewer conversions for the Dream Home and Cathedral City Cove areas. In the eastern Coachella Valley,

CVWD, CWA/CSD, Pueblo Unido Community Development Corporation, the Torres-Martinez Desert Cahuilla Indians, and other organizations are working to connect disadvantaged communities to the municipal wastewater system where feasible. To-date, the Region has applied for over $5.5 million for 7 high-priority implementation projects that would connect septic systems to the Region's municipal wastewater system.

2.2.4 Non-Potable Water

Supplies

Non-potable water supplies in the Region include recycled municipal wastewater (recycled water) and untreated water from the Coachella Canal. Non-potable water has been used in the Region since 1965, mainly for irrigation of agriculture, and more recently for golf courses. Non-potable water is a reliable water supply for the Region and is considered a means of source substitution (in-lieu groundwater recharge), because it can directly offset localized groundwater pumping by private groundwater pumpers.

Potential uses for non-potable water in the Region can be divided into four major categories:

- Surface irrigation, especially for golf courses, greenbelt areas, and agriculture;
- Impoundments for recreation, fish hatcheries, landscape ponds;
- Cooling for industrial and commercial applications; and
- Other uses, such as toilet flushing, drain trap priming, fire-fighting, decorative fountains, commercial laundries, industrial boiler feed, soil compaction, mixing concrete, and dust control on roads and streets.

In the western Coachella Valley, municipal wastewater has historically been the only potential source of non-potable water. In 2009, the Mid-Valley Pipeline (see below for more information) completed construction to expand non-potable water in the western Coachella Valley to include Canal water that is blended with tertiary-treated recycled water. Additionally, DWA extracts non-potable water with shallow wells located near its water reclamation plant. In the eastern Coachella Valley, four sources of non-potable water have been identified for potential use: Canal water, fish farm effluent (dependent on one fish farming business operation), agricultural drainage flows, and municipal recycled water from water reclamation plants. The primary use for non-potable water in the Region is agricultural and landscape irrigation. Because non-potable supplies are primarily used for irrigation, demands fluctuate on an annual basis, and demands in the summer are generally greater than demands in the winter. CVWD conveys Canal water to irrigation users when irrigation demands exceed recycled water availability.

In the eastern Coachella Valley (generally east of Washington Street), the Coachella Canal and its adjacent irrigation distribution system have delivered Canal water to the agricultural community since 1950. Water that is not used for irrigation is recharged at the Thomas E. Levy GRF. Recharge water can be made available for non-potable purposes. In order to take advantage of this existing non-potable water source, CVWD developed the Mid-Valley Pipeline, a pipeline distribution system that was designed to deliver non-potable water for golf course and open space irrigation uses the middle of the Region where irrigation demands are high (the Mid-Coachella Valley area) (CVWD 2012). The Mid-Valley Pipeline was initially proposed by CVWD in 2000 in a study entitled *Conjunctive Use/Surplus Water Storage Study* and was later incorporated as a preferred alternative into the 2002 *Coachella Valley WMP* (CVWD 2002). This project was proposed to deliver water from the Coachella Canal to golf courses in the Mid-Coachella Valley for purposes of in-lieu groundwater recharge (source substitution) through which golf courses would reduce

localized groundwater pumping and instead rely on Canal water for irrigation. The original Mid-Valley Pipeline concept only considered irrigation with Canal water; however, an updated concept paper produced in 2005 recommended blending of recycled water with Canal water to address seasonal fluctuations in irrigation demand and recycled water availability and allow for increased utilization of recycled water supplies for non-potable uses. The backbone for the Mid-Valley Pipeline, which consisted of a pipeline connecting the Coachella Canal to CVWD's WRP-10, was completed in 2009. This component of the Mid-Valley Pipeline allows for delivery of Canal water to WRP-10 where it is blended with recycled water to create the non-potable water delivered by the Mid-Valley Pipeline. The blending of Canal water with recycled water varies seasonally, thus, additional Canal water is necessary in the summer months as the amount of recycled water available from WRP-10 is not sufficient to meet higher summer irrigation demands caused by higher summer temperatures.

Due to the importance of using non-potable water to offset groundwater pumping in the Region, the Non-Potable Water Use Expansion Program, which will connect seven golf courses to the non-potable water system, was included in the fully-funded Proposition 84-Round 2 Implementation Grant Application.

Recycled Water

Recycled water usage has increased from about 500 AFY in 1965 to over 13,000 AFY in 2015 (CVRWMG 2009; CVWD 2016a; DWA 2016; IWA 2016; and MSWD 2016). CVWD owns and/or operates two WRPs (WRP-7, and WRP-10) which generate reclaimed water for golf courses and large landscape areas. Wastewater flows from the western part of CVWD are generally directed to WRP-10, which serve the communities of Indian Wells, Palm Desert, and Rancho Mirage as well as a portion of Cathedral City. VSD operates a WWTP that will produce recycled water in the future.

DWA also has a recycling program using wastewater effluent from the City of Palm Springs. As seen in **Table 2-5**, DWA operates a 10.0 mgd water reclamation plant which distributes recycled water for irrigation uses. DWA began its recycled water program with the opening of the reclamation plant in 1988. Wastewater first goes to the City of Palm Springs WWTP, where it is initially treated before DWA's recycling facility receives it and performs tertiary treatment prior to distribution.

MSWD is completing a recycled water feasibility study and is designing their new West Valley WRF. The WVWRF will have an initial capacity of 1.5 mgd and is expected to be operational in 2019. MSWD anticipates adding recycled water capabilities in a subsequent phase. By 2040, it is expected that MSWD will implement tertiary treatment and expand recycled water capacity to 6,400 AFY (MSWD 2016).

Table 2-5: Summary of Water Reclamation Plant Capacity

Facility	Agency	Location	WRP Secondary Treatment (mgd)	WRP Tertiary Treatment (mgd)
WRP-7	CVWD	North Indio	5.0	2.5
WRP-10	CVWD	City of Palm Desert	18.0	15.0
DWA	DWA	City of Palm Springs/DWA	10.9[1]	10.0
West Valley WRF[2]	MSWD	City of Desert Hot Springs	1.5	0
Total			**35.4**	**27.5**

1. This reflects the amount of water that Palm Springs has initially treated at the secondary level. This water is subsequently delivered to DWA for tertiary treatment.
2. The West Valley WRF is currently under design and is anticipated to begin operations in 2019.

Sources: CVWD 2016a; DWA 2016; CVWD 2012a; MSWD 2016

Table 2-6 lists existing recycled water uses for recycled water from CVWD and DWA's water reclamation plants.

Table 2-6: Recycled Water Use

Use	Source	Usage (AFY)
CVWD		
Landscape Irrigation[1]	WRP-7, WRP-10	8,749
DWA		
Landscape Irrigation[1]	City of Palm Springs/DWA	4,600
Total		**13,349**

1. Landscape irrigation includes golf course irrigation

Sources: CVWD 2016a; DWA 2016

2.2.5 Water Conservation

In January 2014, Governor Brown declared a State of Emergency due to drought conditions experienced throughout the State. On May 5, 2015, the State Water Resources Control Board (SWRCB) adopted an emergency regulation to implement a mandatory 25% statewide reduction in potable urban water use called for by Governor Jerry Brown in an April 1, 2015 Executive Order. The SWRCB's emergency regulations establish conservation standards for each urban water supplier that ranged from 4-36% based on existing residential water use figures from the SWRCB. In May 2016, Governor Brown issued Executive Order B-37-16 to establish long-term water conservation measures, building on the temporary statewide emergency water use restrictions. These measures include permanent monthly water use monitoring and reporting, new water use standards, and bans on wasteful water use practices. In April 2017, Governor Brown lifted the drought state of emergency, though the State will continue to implement long-term water conservation policies to plan for future long-term, severe drought conditions.

The CVRWMG recognizes that water is a limited resource and that water conservation and use efficiency should be actively pursued. Each agency implements a variety of irrigation and/or domestic water

conservation measures, including model landscape ordinances, buried agricultural irrigation distribution pipelines, water-efficient irrigation controls, water-efficient plumbing, water-wise landscaping programs, turf and toilet programs, conservation outreach and education, conservation pricing of water rates, and water audits (CVWD 2016a; DWA 2016; IWA 2016; MSWD 2016). The Coachella Valley's water conservation efforts have reduced urban water demands by well over the 2020 goal of a 20% water use reduction, as mandated by the Water Conservation Act of 2009 (Senate Bill x7-7 or SBx7-7). Water conservation best management practices (BMPs; also referred to as demand management measures or DMMs) as set forth by the California Water Efficiency Partnership (CWEP; formerly the California Urban Water Conservation Council) and that are implemented by the CVRWMG agencies are provided in **Table 3-1** of *Chapter 3 Issues and Needs*.

Due to the importance of water conservation in the Region, in 2010 the CVRWMG worked together to develop the Regional Water Conservation Program. This program was awarded $1.03 million in Proposition 84 Implementation Grant-Round 1 Funding and is anticipated to result in approximately 6,625 AF of conservation savings per year. Through this effort, the CVRWMG launched a conservation web tool (www.cvwatercounts.org) that allows users to find out who their water provider is, find tools and information to save water, and learn about available rebate programs. The CVRWMG has continued to implement collaborative conservation programs including the Non-Potable Water Use Expansion Program, which substituted an alternate non-potable water source to offset groundwater pumping for non-potable uses and was funded by Proposition 84-Round 2, and the Regional Turf Reduction Program, which provided turf rebates to customers that replaces water-intensive turf grass with water-wise landscaping and was funded by Proposition 84-Round 3. The CVRWMG will continue to implement water conservation efforts to reduce potable water use and prepare for future drought conditions. The sections below describe water conservation efforts undertaken by each of the CVRWMG member agencies.

CWA

On November 2, 2000, the City of Coachella became signatory to the Urban Water Conservation Memorandum of Understanding (MOU) with the California Urban Water Conservation Council (CUWCC). CWA currently implements the following water conservation programs: residential water audits (in partnership with Coachella Valley Resources Agency), residential plumbing retrofits, large landscape conservation incentives, outreach and education, a model landscape ordinance, and a water waste prevention ordinance. CWA meters its customers' water usage and implements a tiered conservation pricing structure to encourage water use reductions.

The City also promotes water conservation and other resources in coordination with the CVRWMG's regional conservation group, CV Water Counts (www.cvwatercounts.com) and other energy utilities. The City distributes public information through bill inserts, brochures, and community events.

CVWD

Although CVWD is not a signatory to the CUWCC MOU, CVWD has had a water conservation program since the 1960s and implements the CUWCC's 14 BMPs. Conservation is a key element of CVWD's 2002 Coachella Valley WMP and the subsequent 2010 Coachella Valley WMP Update. CVWD recognizes the importance of conserving water in order to reduce pressure on the groundwater supply. Water conservation programs currently in place include the Model Landscape Ordinance, Water Waste Prevention Ordinance, the Lush and Efficient Landscape Gardening Guide, landscape plan checking, tiered water rates, water wise landscape workshops and seminars, evapotranspiration irrigation clock rebates and installations, a toilet

rebate program, and water wise landscape rebate programs. Several water conservation and management activities are also incorporated into CVWD's agricultural irrigation distribution system. CVWD's irrigation distribution system was built to include conservation measures unheard of in the 1940s. Unique to that initial system was a pipeline distribution system, a pipeline drainage system, and metered deliveries to every farm. Currently, CVWD has an agricultural conservation program in its 2010 Coachella Valley WMP Update. Agricultural water conservation programs being developed are grower education and training, technical assistance services and funding assistance for irrigation retrofits (CVWD 2016a).

As a signatory to the QSA, CVWD is currently exempt from the portion of SBx7-7 that requires agricultural water suppliers to develop an agricultural water management plan and implement efficient water management practices by July 31, 2012. Under the QSA, CVWD was required to repay 73,200 AF of water for historical diversions in excess of CVWD's entitlement. For the duration of the QSA, the repayment of this water is credited against the obligations of SBx7-7. In order to repay the 73,200 AF of water, CVWD implemented an Extra-ordinary Conservation Program. This program consisted of CVWD funded and grower participation in a number of agricultural conservation programs, including scientific irrigation scheduling, salinity management, salinity field mapping, conversion of irrigation systems to micro-irrigation, distribution uniformity evaluations, grower training and meetings and engineering evaluations.

IWA

The City of Indio is a signatory to the CUWCC MOU. Water conservation programs, which address most of the CUWCC BMPs, include a Landscaping and Water Conservation Ordinance, a Water Conservation Master Plan that addresses SBx7-7, a water smart landscaping rebate program, landscape audits, tracking of water wasters, education and outreach programs to schools, smart controller rebate program, a residential plumbing retrofit program, and a tiered rate structure. Since the water smart landscaping rebate program was implemented in July 2008, IWA has converted over 1.3 million square feet of turf to water-efficient landscape.

DWA

DWA is a signatory to the CUWCC MOU. DWA's signed MOU is dated October 15, 1991. As a member of the CUWCC, DWA has complied with all BMP targets outlined in the MOU that have been determined appropriate for the conditions within its service area (DWA 2016). Water conservation programs currently underway by DWA include landscape water audits, trainings and audits for homeowners associations (which are large water users), water wise tips and tools, water waste prevention ordinances, and a hospitality conservation program. DWA has rebates available to customers for turf replacement, smart irrigation controller installation, efficient irrigation nozzles and efficient toilets. DWA has also partnered with numerous businesses to offer coupons on water efficient services, including leak detection.

MSWD

MSWD recognizes water use efficiency as an integral component of current and future water strategy for the service area. Although MSWD is not a signatory to the CUWCC MOU, MSWD has made State-mandated BMPs the cornerstone of its 2004 Water Conservation Master Plan and a key element in the overall regional water resource management strategy for the region. The Water Conservation Master Plan defines a series of sensible water conservation activities that complement the unique water resource characteristics of MSWD's service area (MSWD 2016). MSWD is currently implementing the following water conservation program elements: Water Efficient Landscape Guidelines, water wise tips and tools,

residential surveys, landscape irrigation surveys, various water conservation rebate programs (turf rebates, plumbing fixture rebates, etc.) outreach and education, and conservation pricing.

VSD

VSD and IWA have established a MOU that allows them to collaborate on water reuse and groundwater recharge projects and efforts. As a result of this agreement, the two agencies formed a Joint Powers Authority, known as the East Valley Reclamation Authority, to develop a recycled water facility that will serve both agency's customers. The project planning is currently underway and next steps include completing the feasibility study, financial planning, preliminary engineering studies, and securing funding.

2.2.6 Agricultural Water

The majority of agricultural land within the Coachella Valley is irrigated with water that originates from the Colorado River (Canal water); some irrigation water is pumped from local groundwater. The water originating from the Colorado River is diverted from the river at the Imperial Dam, which is owned by the U.S. Bureau of Reclamation (USBR) and operated by IID. After the water is diverted from the Colorado River, it flows 159 miles through the All American and Coachella Canals to Coachella Valley irrigators. The Coachella Canal and its operational storage reservoir, Lake Cahuilla, are operated and maintained by CVWD. CVWD is responsible for distributing the water to farmers and other irrigators within the Improvement District No. 1 boundary through an underground pipeline system that reaches 40-acre agricultural parcels. **Figure 2-11** (*Section 2.3.1 Land Use Agencies*) shows the location of CVWD's Improvement District No. 1 in relation to land use.

Typical methods of irrigation in the Coachella Valley include small amounts of furrow and border strip irrigation, but mostly micro-sprinkler irrigation, drip irrigation, and sprinkler irrigation. Irrigation methods are usually chosen based on crop type or performance objectives, but more than 60% of area farms use water efficient drip or other micro-irrigation techniques.

Desalinated Water

Desalination processes are included in the WMP for reuse of brackish (high-scaling) water that includes agriculture return flows in the Coachella Valley. The Coachella Valley has a large network of drains and open channels that transport irrigation drainage flows and stormwater to the CVSC. In the agricultural area of the eastern Coachella Valley, a high perched groundwater table and concentration of salts in irrigated soils makes this system a requirement. CVWD operates and maintains the drainage system consisting of 166 miles of buried pipe and 21 miles of open channels. The system receives flows from on-farm drainage lines. Throughout most of the eastern Coachella Valley, the drainage system flows to the CVSC; however, in areas near the Salton Sea some open channels convey flows directly into the sea. The Salton Sea serves as a drainage reservoir for irrigation flows and stormwater from the Coachella and Imperial Valleys.

The 2010 Coachella Valley WMP includes desalting brackish water to a quality equivalent to Canal water and delivering it for irrigation use (CVWD 2012). In 2008, CVWD completed a pilot study that assessed the feasibility of treating brackish water, and also analyzed potential brine management approaches. The feasibility study recommended that reverse osmosis technology be used to meet current water quality goals and provide flexibility in the level of water quality produced (CVWD 2016a). In addition, it was determined that semi-perched brackish groundwater will be utilized instead of agricultural drain water for desalination. The 2010 Coachella Valley WMP Update indicates that the amount of water recovered through water desalination will range from 55,000 to 85,000 AFY.

In addition to desalinated local water, the Region has also considered desalinated ocean water as a potential water supply source. Due to the Region's distance from the coast (ocean water), obtaining such a water source in the Coachella Valley would require coordination with a coastal water agency, and would likely involve an exchange agreement. Similar to the Region's SWP exchange agreement with MWD, the Region could potentially exchange SWP or Colorado River water for desalinated ocean water with a coastal water agency. Desalinated ocean water is generally of better quality than imported water sources. Due to financial, technological, institutional, and other issues that would need to be addressed before an ocean water desalination exchange could occur, the Region's water purveyors do not currently view this water supply source as part of the Region's water supply portfolio (CVWD 2016a).

2.2.7 Stormwater and Flood Management

*This section complies with the **Watershed Identification** requirements for the SWRP by explaining why watershed and sub-watershed(s) are appropriate for stormwater management with a multiple-benefit watershed approach, mapping internal boundaries within the watershed, and identifying natural watershed processes and how those processes have been disrupted.*

Stormwater resource and flood management planning in the Region is complex due to the different watershed responses to rainfall events. The mean seasonal precipitation in the Region averages approximately 3 inches per year. Yet, despite its arid nature, the Region is subject to low pressure system storms from coastal regions that result in heavy precipitation over large areas and can last several days. The Region is also subject to local thunderstorms that cover smaller areas and result in high-intensity precipitation of short duration.

The occasional high intensity localized thunderstorms and longer duration low pressure system storms can lead to flash flooding in the low-lying alluvial fan areas and areas located along the floor of the Coachella Valley. Regional flood hazards can generally be divided between the (1) alluvial fan and (2) Coachella Valley floor areas, which both have the characteristic of carrying large amounts of debris and sediment that reshape the natural flow paths with unpredictable changes in direction. The physical characteristics of the Coachella Valley combined with the intense rainfall events generate flood hazards that are different from conventional floodplains.

Stormwater and Flood Control

Riverside County Flood Control and Water Conservation District (RCFCWCD) and CVWD are the Region's flood control districts (shown in **Figure 2-7**). CVWD's and RCFCWCD's regional flood control systems consist of a series of debris basins, levees, and stormwater channels that convey floodwaters from the mountains and alluvial fans surrounding the Coachella Valley to the 49-mile Whitewater River Stormwater Channel/Coachella Valley Stormwater Channel (WRSC/CVSC), which is the backbone of the Region's flood control system. The WRSC/CVSC consists of improved and unimproved conveyance sections that ultimately convey the flows to the Salton Sea. The WRSC/CVSC is designed according to the 100-year flood flow, which is approximately 39,000 cubic feet per second (cfs), to ensure protection of the areas located within its protection area (United States Army Corps of Engineers 2000).

Local Drainage and Stormwater Permitting

Local cities and Riverside County convey runoff from storm events to the WRSC/CVSC, and each city in the Coachella Valley provides local drainage control through a system of storm drains, retention basins and

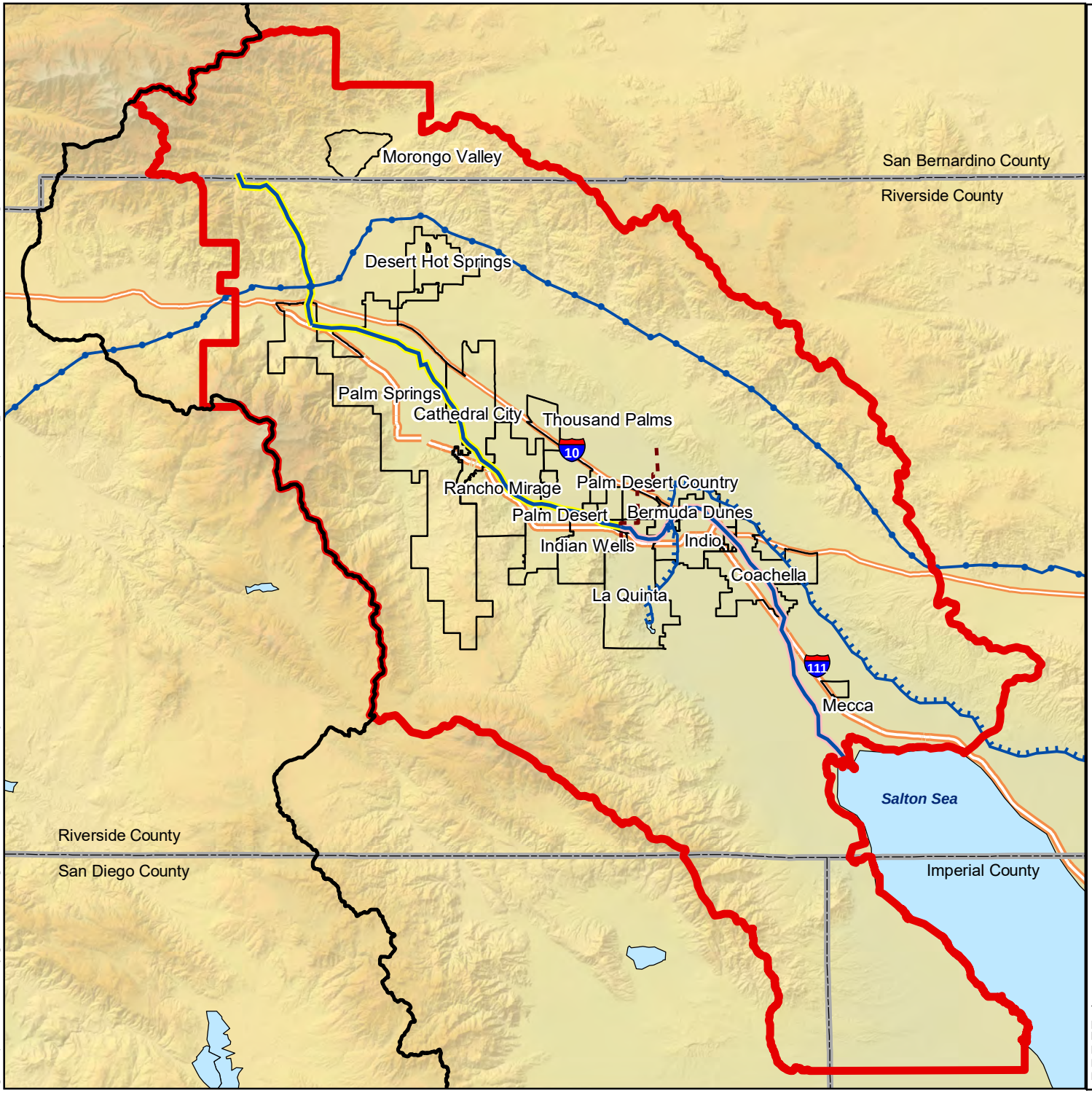
dry wells, some of which convey stormwater to the WRSC/CVSC. The system of stormwater conveyances is called MS4. Stormwater flows through the MS4 are not connected to the sanitary sewer system or a publicly owned treatment works. Discharges from an MS4 to the waters of the U.S. are regulated by the U.S. Environmental Protection Agency (USEPA) and the Regional Board through the National Pollutant Discharge Elimination System (NPDES) MS4 permitting process. The Regional Board issues permits for these systems to establish conditions under which pollutants can be discharged from the storm drain system to local water bodies.

Discharges from the MS4 in the Region are regulated under the Whitewater River Region NPDES MS4 Permit (Permit No. R7-2013-0011). The MS4 permit for the Whitewater River Watershed was adopted on June 20, 2013 and the permittees include RCFCWCD, Riverside County, CVWD, and the Cities of Coachella, Desert Hot Springs, Palm Desert, Banning, Indian Wells, Palm Springs, Cathedral City, Indio, Rancho Mirage, and La Quinta. In accordance with the 2013 Whitewater River MS4 Permit, all new development will implement best management practices, including retaining stormwater on-site, during rain events. Because of these mitigation efforts, stormwater conveyance and flood control pertain primarily to stormwater runoff from surrounding mountains and alluvial fans following a major storm event. Additional information about the Whitewater River MS4 Permit is provided in *Section 2.5.5 Stormwater Quality and Water Quality Compliance*.

Existing Flood Hazards

Despite the existing flood control infrastructure and measures, there is periodic flooding and potential hazards associated with flooding in the Region following storm events. Existing flooding can occur in two different ways, including:

- Local flooding: Areas where infrastructure capacity is exceeded due to a localized storm event, which results in local flooding. Local flooding is usually a short-term inconvenience due to street flooding or structural flooding, such as in basements and yards.
- Regional flooding: Areas that are flooded due to either failure or exceeded capacity at regional facilities, or more commonly, because some areas do not contain flood control infrastructure and are located within flood risk areas. Regional flooding can affect entire developments, and portions of cities, and is usually associated with a rare storm event in an identified flood risk area.



Coachella Valley Municipalities

Figure 2-6

Legend

- Division between Western and Eastern Coachella Valley
- Colorado River
- Coachella and All American
- Whitewater River Stormwater Channel
- Coachella Valley Stormwater Channel
- Highways
- Water Bodies
- Colorado River Funding
- IRWM / SWR Planning
- County Lines
- City Boundaries

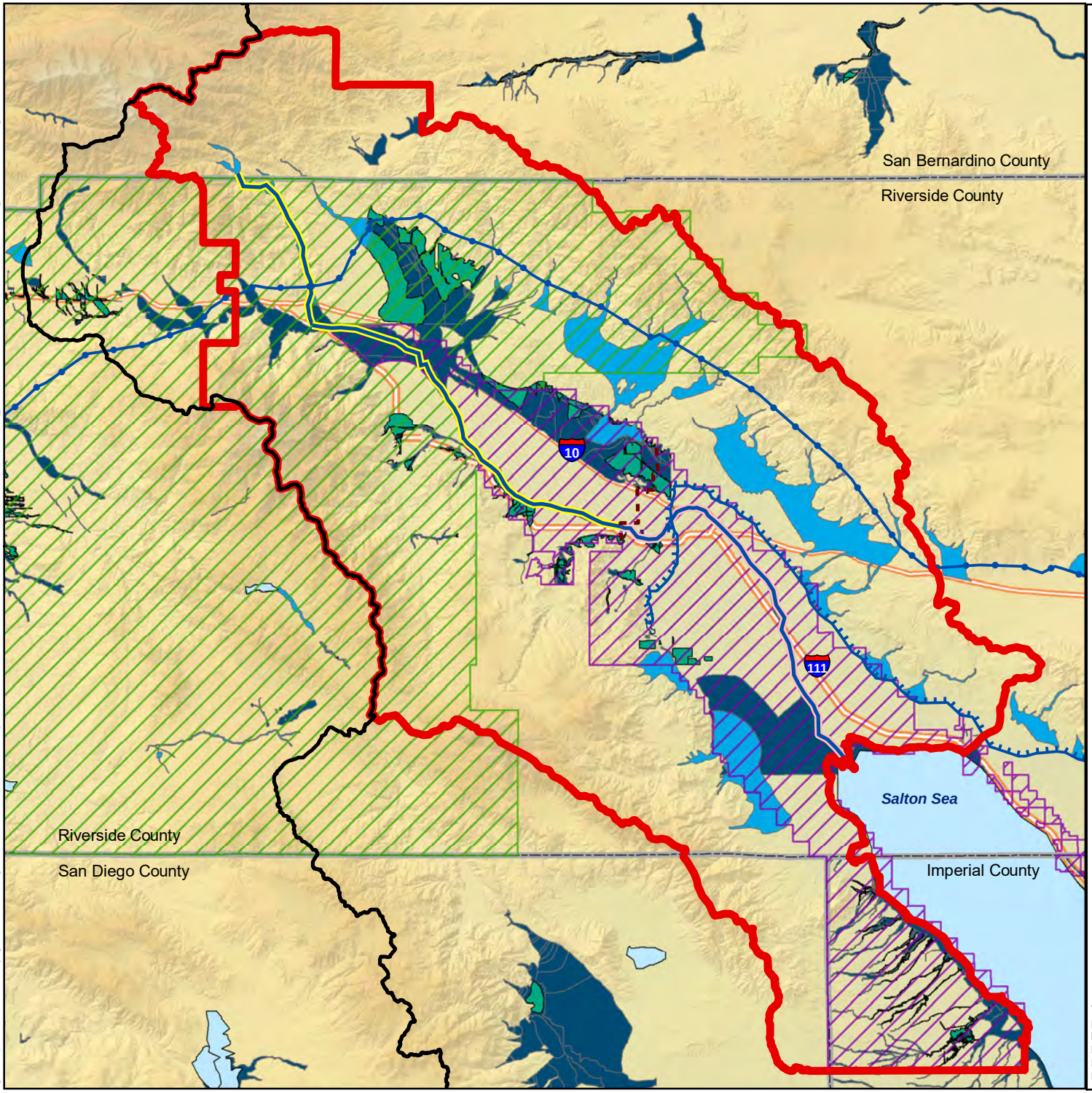
0 1.75 3.5 7 10.5 14 Miles

N

Map Created: June 2018

Third Party GIS Disclaimer: This map is for reference and graphical purposes only and should not be relied upon by third parties for any legal decisions. Any reliance upon the map or data contained herein shall be at the users' sole risk. **Data Sources: FEMA Flood Zone Designations, DWR Awareness Flood Maps, DATA.GOV**

Figure Exported: 7/12/2018 By: gvalenzuela Using: \\woodardcurran.net\shared\Projects\RMC\SD\0574 - CVWD\0574-002 Coachella IRWM Plan Update\03_GIS\2018 IRWM-SWR Plan Update\GIS\MXDs\Fig 2-6 Municipalities.mxd



Stormwater Agencies and Federal and State Mapped Flood Zones

Figure 2-7

Legend

- Division between Western and Eastern Coachella Valley
- Colorado River Aqueduct
- Coachella and All American
- Whitewater River Stormwater Channel
- Coachella Valley Stormwater Channel
- Highways
- Water Bodies
- Colorado River Funding Area
- IRWM / SWR Planning Area
- County Lines
- DWR Flood Awareness
- FEMA 100-year Flood Zone
- FEMA 500-year Flood Zone
- Coachella Valley Water District
- Riverside County Flood Control and Water Conservation District

0 1.75 3.5 7 10.5 14 Miles

N

Map Created: June 2018

Third Party GIS Disclaimer: This map is for reference and graphical purposes only and should not be relied upon by third parties for any legal decisions. Any reliance upon the map or data contained herein shall be at the users' sole risk. **Data Sources: FEMA Flood Zone Designations, DWR Awareness Flood Maps, DATA.GOV**

Figure Exported: 7/12/2018 By: gvalenzuela Using: \\woodardcurran.net\shared\Projects\RMC\SD\0574 - CVWD\0574-002 Coachella IRWM Plan Update\03_GIS\2018 IRWM-SWR Plan Update\GIS\MXDs\Fig 2-7 Stormwater Agencies and Federal and State Maped Flo

Regional mapping of the existing flood hazards for the Region has been prepared by the Federal Emergency Management Agency (FEMA) as part for the National Flood Insurance Program (NFIP), which requires each community to regulate Special Flood Hazard Areas (SFHAs). SFHAs are defined as areas that are prone to 100-year flood events (defined as the area that will be inundated by a flood event that has a 1% chance of being equaled or exceeded in any given year), and must be regulated as part of adopting floodplain management regulations (refer to **Figure 2-7**). Additional mapping for some of the areas not covered by the published FEMA flood hazard mapping has been prepared by DWR through their "Flood Awareness Mapping" which provides identification of floodplain limits through approximate methods. The intent of the Flood Awareness Mapping project by DWR is to identify all pertinent flood hazard areas by 2015 for areas that are not mapped under the NFIP, and to provide the community and residents an additional tool in understanding potential flood hazards currently not mapped as a regulated floodplain. The awareness maps identify the 100-year flood hazard areas using "approximate assessment procedures." The mapping provided by FEMA and DWR should be used cautiously because of the approximate nature of the methods used in the evaluations.

In addition to the mapped flood hazards, there are several areas of the Region that are not covered by flood hazard mapping but do not have flood control facilities and are vulnerable to flooding. These areas include the following:

- Areas adjacent to Mission Creek in the Desert Hot Springs area
- Sky Valley and Indio Hills
- Thousand Palms
- Portions of Indio north of Interstate 10
- The Oasis community extending from Avenue 66 to Avenue 86
- Areas adjacent to the Coachella Valley Stormwater Chanel south of Avenue 52
- Highway 111 between Palm Springs and Cathedral City
- Roadways that cross the Whitewater River

To address these vulnerabilities, CVWD has undertaken a stormwater planning effort in the North Cathedral City and Thousand Palms area. Stormwater is conveyed downstream through natural washes and further conveyed into subdivisions by I-10 and other major roadways. The Coachella Valley Stormwater Master Plan is designed as a long-term, comprehensive stormwater master plan that identifies conceptual locations, alignments, and sizes for primary stormwater facilities within the 167 square mile Study Area. The Stormwater Master Plan is a planning guide for locating and sizing regional stormwater and drainage facilities. It is anticipated these facilities will be constructed by CVWD and/or others over time as continued urban development takes place within the area. The Stormwater Master Plan has been designed to be flexible to allow CVWD to respond to changed physical, environmental, regulatory, and economic conditions. Alternatives considered for the Stormwater Master Plan aim to convey stormwater to existing stormwater channels, and away from development, or if such protection is unfeasible, to reduce the depth of inundation, thereby reducing the degree of potential damage caused by flooding (CVWD 2013d).

2.2.8 Natural Communities and Habitats

*This section complies with the **Watershed Identification** requirements for the SWRP by mapping native habitats and other natural or open space within the watershed.*

The Coachella Valley is an area of great biological diversity. This diversity is due in part to the range in elevations in the region and the accompanying variations in temperature and precipitation. The Coachella Valley floor, which trends northwest to southeast between the San Jacinto and Santa Rosa Mountains and the Little San Bernardino Mountains, goes from nearly 2,000 feet above sea level on the alluvial fans at the northwest end of the Coachella Valley to 230 feet below sea level at the southeast end. The surrounding mountains rise as high as 10,804 feet above sea level, with elevations on the southern side rising substantially higher than the northern side.

The Coachella Valley desert floor forms the westernmost edge of the Sonora Desert. At the San Gorgonio Pass, which is the pass between the San Jacinto and Little San Bernardino Mountains, the natural desert communities of the Sonora Desert begin to transition into the less arid communities of the interior valleys of southern California that lie to the west of Coachella Valley. Strong winds that concentrate in the San Gorgonio Pass, create an aeolian dune system that historically occupied much of the Coachella Valley.

Canyons in the mountains around the Coachella Valley floor support riparian areas that are not typical of a desert environment. The Santa Rosa Mountains, in particular, supports a number of desert fan palm oases, and the alluvial fans at the base of the canyons comprise a distinctive biological community.

The Coachella Valley contains 27 species of plants and animals that are threatened or facing extinction, including the Desert Tortoise, Burrowing Owl, Palm Springs Pocket Mouse, Peninsular Bighorn Sheep, and Desert Pupfish. The San Andreas Fault zone has created a unique corridor of desert fan palm oases stretching along the southern side of the Indio Hills where water is forced to or near the surface by the damming action of the fault. Mesquite hummocks and mesquite bosques are also associated with the fault in some areas (CVAG 2016). **Figure 2-8** provides mapping of the natural communities located within the Region, including chaparral, desert alkali scrub, desert scrub, riparian, dry wash woodland and mesquite, sand dunes and sand fields, marsh, and woodland and forest.

Habitat Conservation

The Coachella Valley Multiple Species Habitat Conservation Plan and Natural Community Conservation Plan (CVMSHCP) is a regional conservation plan that aims at protecting 240,000 acres of open space and 27 species, ensuring the survival of endangered species and enhancing regional infrastructure without causing environmental conflicts. The CVMSHCP addresses issues regarding water needs for habitat preservation. Specifically, the CVMSHCP attempts to avoid groundwater draw down which can potentially impact the ability of certain plants to hold and release sand.

In terms of regional water demand, ecological and habitat preservation constitutes a relatively small amount of demand. Despite this fact, many of the agencies involved in the Coachella Valley IRWM/SWR Plan have addressed this demand by becoming or applying to become local permittees to the California Department of Fish and Wildlife (CDFW) Natural Community Conservation Plan (NCCP) Permit for the CVMSHCP. Current permittees include the Coachella Valley Association of Governments (CVAG), Coachella Valley Conservation Commission (CVCC), Caltrans, Coachella Valley Mountains Conservancy (CVMC), California State Parks, the City of Indio (IWA), CVWD, MSWD, City of Coachella (CWA),

County of Riverside, RCFCWCD, Riverside County Parks, Riverside County Waste, Cathedral City, Indian Wells, La Quinta, Palm Desert, Palm Springs, Rancho Mirage, Desert Hot Springs, and IID. CVCC is responsible for implementation of the CVMSHCP.

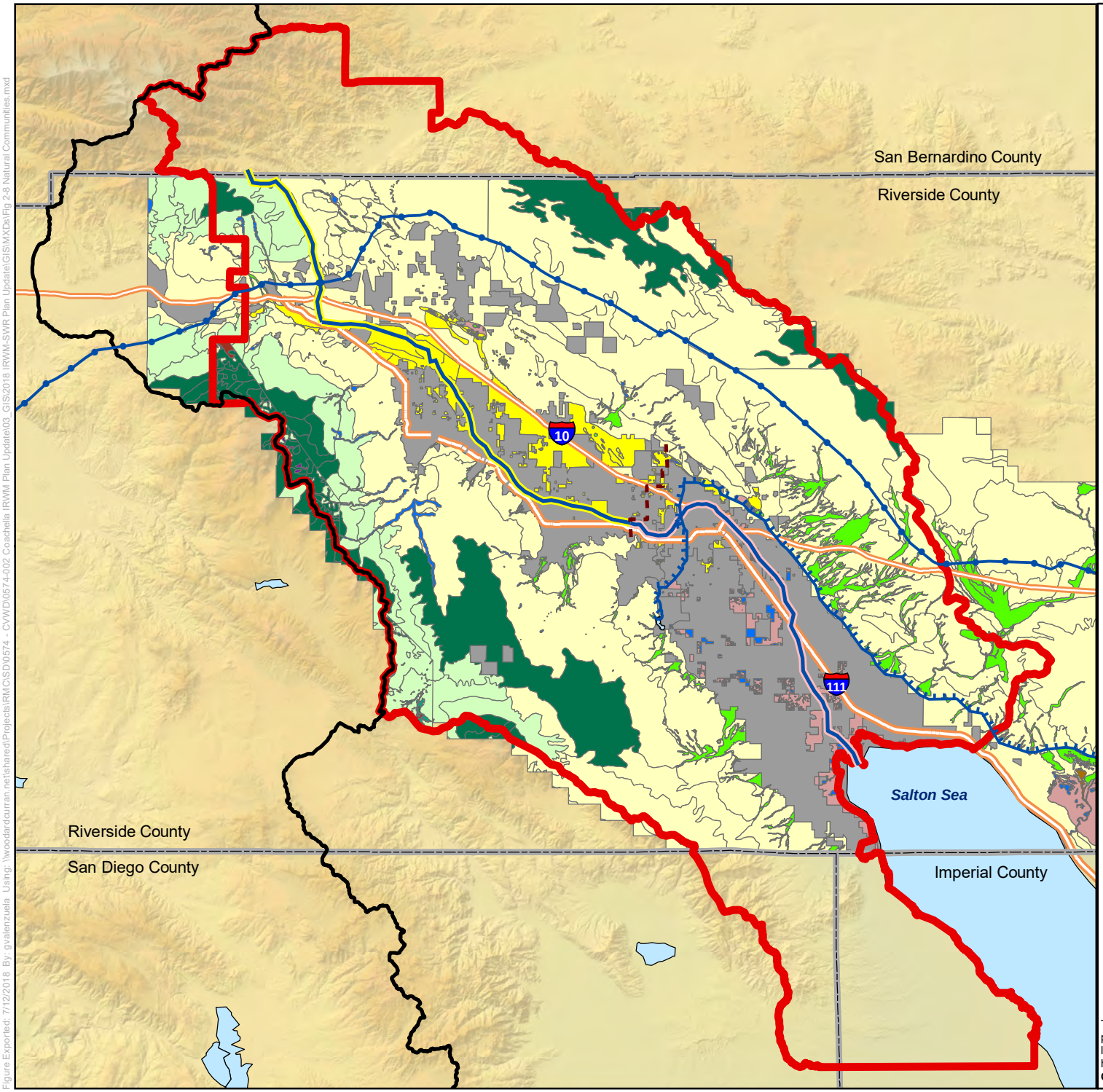
The CVMSHCP reports that the largest threat to desert-floor biological resources is constant urban and resort development. While public and private conservation lands in some parts of the Region represent large swaths of habitat, in other areas, protected lands are disconnected, and the disjointed nature of these areas limits wildlife movement and conservation benefits. The CVMSHCP found that existing conservation lands are not distributed in a way to provide adequate protection for all types of habitat or to protect essential ecological processes. The CVMSHCP involves the establishment of a Multiple Species Habitat Conservation (MSHCP) Reserve System to ensure the long-term conservation of covered species and natural communities. Through a combined effort of the local permittees and State and local agencies, a total of 209,740 acres of conservation lands are to be added to the MSHCP Reserve System, and as of December 2016, 89,347 acres (or 43% of the goal) have been acquired.

The protection of wildlife water sources will be essential to freshwater-wetland, riparian and marsh habitat survival. **Figure 2-9** provides an overview of the CVMSHCP conservation areas. The three conservation areas described below, which are provided as a representative example of conservation areas in the Coachella Valley, are outlined in yellow on the map. Below is a summary of conservation objectives regarding the preservation of their water sources:

- **Whitewater Floodplain Conservation Area:** Conserve at least 3,484 acres in the fluvial (water-borne) and aeolian sand transport area in the Palm Springs portion of the area, at least 61 acres in the Cathedral City portion of the area, and at least 481 acres in the unincorporated Riverside County portion of the area; and maintain the current capacity for fluvial sand transport in the Whitewater River floodplain.
- **Snow Creek/Windy Point Conservation Area:** Conserve at least 838 acres of the fluvial and aeolian sand transport in the City of Palm Springs and at least 1,482 acres in the unincorporated portion of the area; maintain the current capacity for fluvial sand transport in the San Gorgonio River floodplain; and conserve the Whitewater Floodplain Biological Corridor.
- **Stubbe and Cottonwood Canyons Conservation Areas:** Conserve at least 1,129 acres in the fluvial (water-borne) sand transport area; maintain the current capacity for fluvial sand transport in Stubbe Canyon Wash; and conserve at least 25 acres of Sonoran cottonwood-willow riparian forest and at least 229 acres of desert dry wash woodland natural communities.

Restoration and conservation efforts required by the CVMSHCP also include (CVAG 2016):

- A permanent water source for permanent habitat for California black rail and Yuma clapper rail in the CVSC and Delta Conservation Area
- A permanent water source, as needed, for riparian habitat for covered riparian bird species (refer to CVMSHCP *Section 4.3.20*)
- A permanent water source for desert pupfish habitat
- Restoring and enhancing mesquite and Coachella Valley round-tailed ground squirrel habitat in the East Indio Hills Conservation area if CVCC study demonstrates feasibility



Natural Communities

Figure 2-8

Legend

- Division between Western and Eastern Coachella Valley
- Colorado River Aqueduct
- Coachella and All American
- Whitewater River Stormwater Channel
- Coachella Valley Stormwater Channel
- Highways
- Water Bodies
- Colorado River Funding Area
- IRWM / SWR Planning Area
- County Lines

Natural Communities

- Chaparral
- Developed Areas
- Desert Alkali Scrub
- Desert Scrub
- Dry Wash Woodland and Mesquiite
- Marsh
- Riparian
- Sand Dunes and Sand Fields
- Woodland and Forest

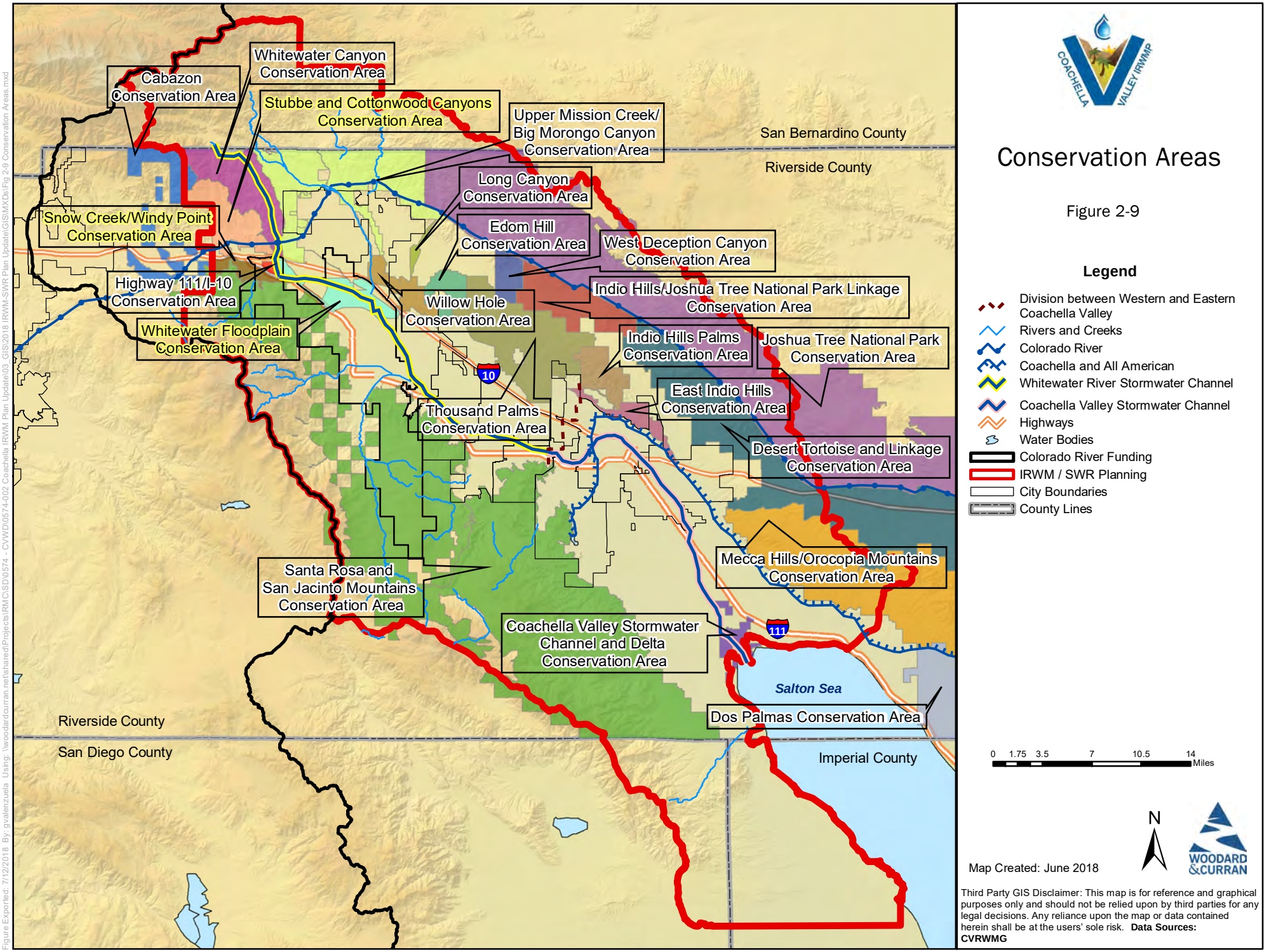
0 1.75 3.5 7 10.5 14 Miles

N

Map Created: June 2018

Third Party GIS Disclaimer: This map is for reference and graphical purposes only and should not be relied upon by third parties for any legal decisions. Any reliance upon the map or data contained herein shall be at the users' sole risk. **Data Sources: CVRWMG**

Figure Exported: 7/12/2018 By: gvalenzuela Using: \\woodardcurran.net\shared\Projects\RMC\SD\0574 - CVWD\0574-002 Coachella IRWM Plan Update\03_GIS\2018 IRWM-SWR Plan Update\GIS\MXDs\Fig 2-8 Natural Communities.mxd



Conservation Areas

Figure 2-9

Legend

- Division between Western and Eastern Coachella Valley
- Rivers and Creeks
- Colorado River
- Coachella and All American
- Whitewater River Stormwater Channel
- Coachella Valley Stormwater Channel
- Highways
- Water Bodies
- Colorado River Funding
- IRWM / SWR Planning
- City Boundaries
- County Lines

0 1.75 3.5 7 10.5 14 Miles

N

Map Created: June 2018

WOODARD &CURRAN

Third Party GIS Disclaimer: This map is for reference and graphical purposes only and should not be relied upon by third parties for any legal decisions. Any reliance upon the map or data contained herein shall be at the users' sole risk. **Data Sources: CVRWMG**

Figure Exported: 7/12/2018 By: gvalenzuela Using: \\woodardcurran.net\shared\Projects\RM\CSD\0574 - CVWD\0574-002 Coachella IRWM Plan Update\03_GIS\2018 IRWM-SWR Plan Update\GIS\MXDs\Fig 2-9 Conservation Areas.mxd

2.3 Internal Boundaries

This section contains a description of internal boundaries within the Region.

Jurisdictional boundaries of the Region include the nine Coachella Valley cities, the service areas of the six CVRWMG partners, and eleven Coachella Valley community councils. In addition to the information within this section, further information regarding internal boundaries can be found as follows: **Figure 1-2** shows boundaries of the CVRWMG water purveyors; **Figure 2-5** shows the boundaries of the local sanitation districts; **Figure 2-11** shows the boundaries of CVWD's irrigation district; **Figure 2-6** shows the location of various municipalities (including city boundaries) within the Region; and **Figure 2-7** shows the boundaries of local flood districts.

2.3.1 Land Use Agencies

*This section complies with the **Watershed Identification** requirements for the SWRP by mapping natural or open space within the watershed.*

There are approximately 444,500 residents in the Coachella Valley as of 2015 (US Census 2016). About 362,550 people, or 82% of Coachella Valley residents, live in one of the nine incorporated cities, while the other 18% live in unincorporated portions of the Coachella Valley. Palm Springs is the largest city with respect to land area, while Indio is the most populated of the Coachella Valley cities with a population of approximately 88,500 residents. The other seven incorporated cities include Cathedral City, Coachella, Desert Hot Springs, Indian Wells, La Quinta, Palm Desert, and Rancho Mirage (see **Figure 2-10** and **Table 2-7**).

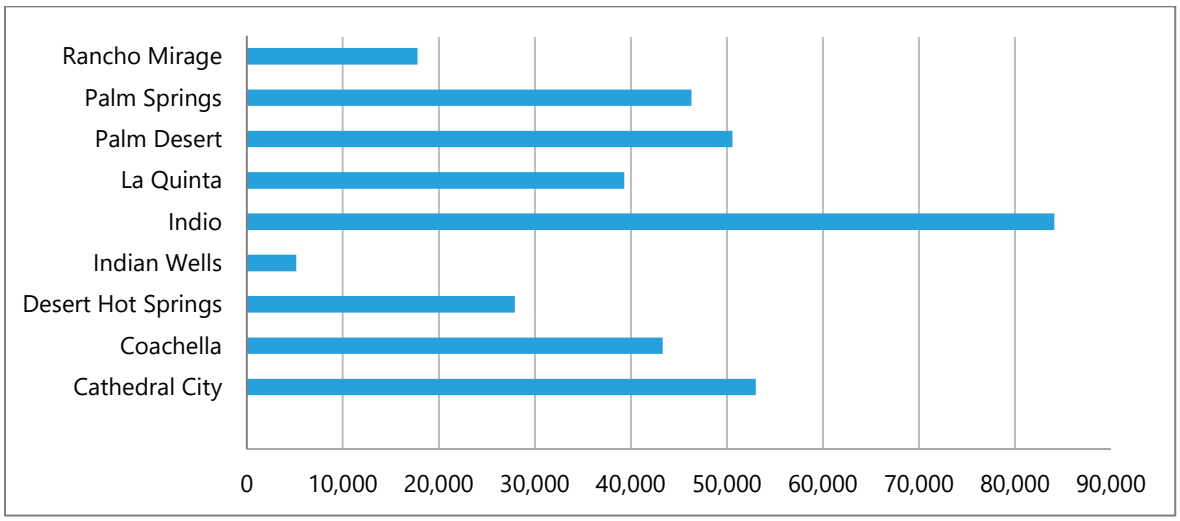
Table 2-7: Coachella Valley Cities

City	Population[1]	Land Area (square miles)
Cathedral City	53,020	21.5
Coachella	43,308	29.0
Desert Hot Springs	27,912	23.6
Indian Wells	5,158	14.3
Indio	84,094	29.2
La Quinta	39,301	35.1
Palm Desert	50,565	26.8
Palm Springs	46,305	94.1
Rancho Mirage	17,770	24.5
Unincorporated County	77,075	1,349.9
Total	**444,508**	**1,648**

1. These population figures are based on 2015 American Communities Survey (ACS) 2011-2015 Population Estimates data. As such, they do not take into consideration seasonal population, which increases significantly between October and May due to the Region's mild winter climate. The water use and wastewater generation by the seasonal population is included in the Region's water and wastewater agencies forecasts and plans, included in this IRWM Plan.

Source: United States Census Bureau 2016

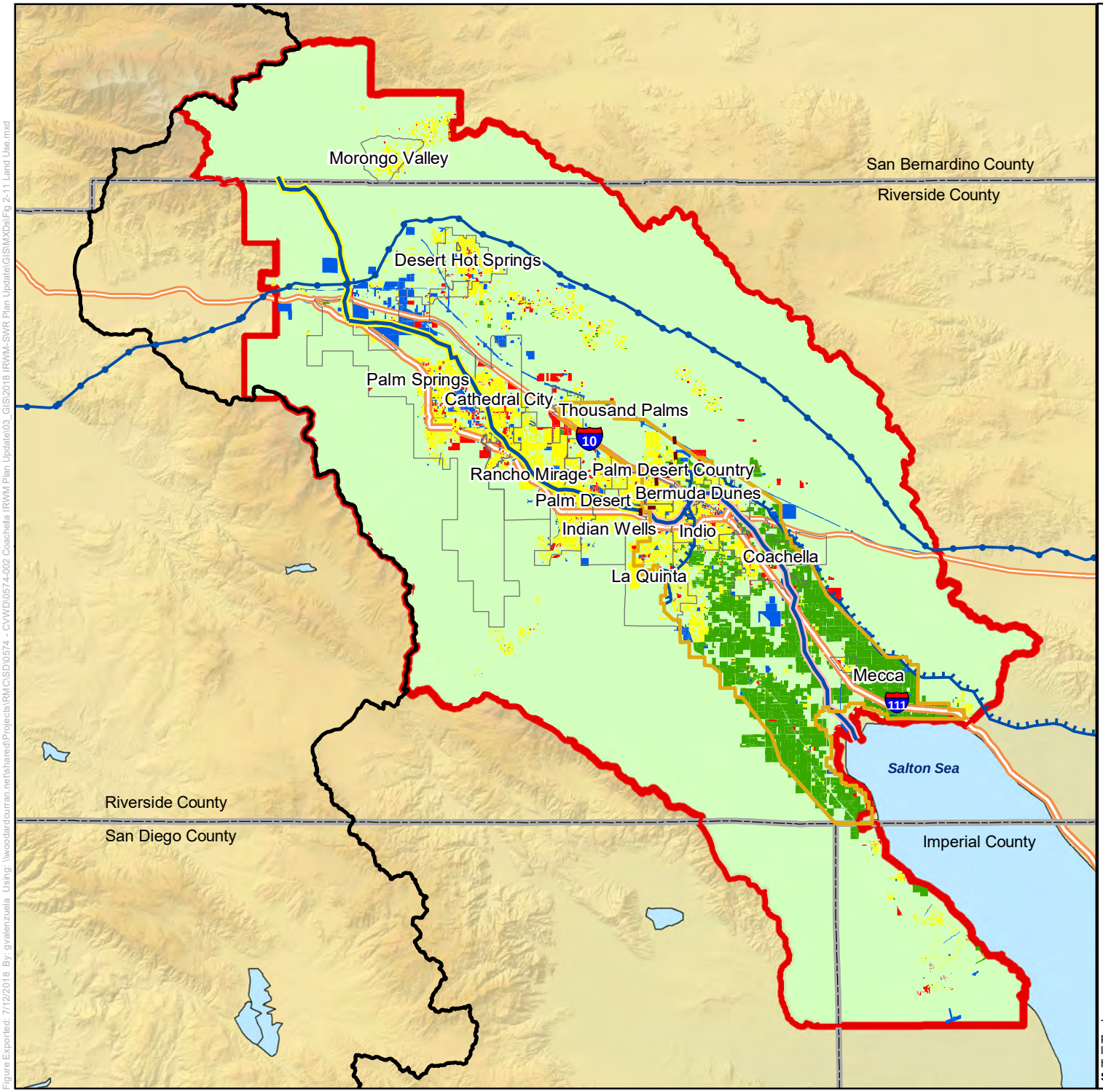
Figure 2-10: Population of Coachella Valley Cities



Eleven community councils are represented within the Coachella Valley. Community councils represent smaller groups of individuals that share a common geographic location (smaller than city councils). Community councils typically agree upon common values and create a tighter social cohesion through collective issues and concerns. Community councils are located within unincorporated Riverside County land and are therefore advisory to the County Board of Supervisors for the district within which they are located. Below is a list of the Coachella Valley community councils:

- Bermuda Dunes Community Council
- Desert Edge Community Council
- Desert Palms Community Council
- Indio Hills Community Council
- Mecca Community Council
- North Shore Community Council
- Oasis Community Council
- Sky Valley Community Council
- Thermal Community Council
- Thousand Palms Community Council
- Vista Santa Rosa Community Council

The central Coachella Valley has experienced major changes in land use, predominantly the conversion from prime farmland to urban or other land forms. Farmland has vastly been transformed since the 1980s to developed, metropolitan areas. The Region has been among the top urbanizing counties in California since 1984 when mapping of the Region started. Over 13,500 acres were removed from prime farmlands and urban land increased by just less than 16,000 acres from 1984 to 2008 (California Department of Conservation 2010). **Figure 2-11** shows the current land use in the Region, along with CVWD's Irrigation District Number 1, which supplies water to agricultural lands as described in *Section 2.2.6 Agricultural Water* above.



Land Use

Figure 2-11

Legend

- Division between Western and Eastern Coachella Valley
- Colorado River Aqueduct
- Coachella and All American
- Whitewater River Stormwater Channel
- Coachella Valley Stormwater Channel
- Highways
- Water Bodies
- Colorado River Funding
- IRWM / SWR Planning
- County Lines
- City Boundaries
- Improvement District No. 1

Land Use

- Residential
- Commercial/Industrial
- Civic
- Open Space
- Agricultural

0 2 4 8 12 16 Miles

N

Map Created: June 2018

WOODARD &CURRAN

Third Party GIS Disclaimer: This map is for reference and graphical purposes only and should not be relied upon by third parties for any legal decisions. Any reliance upon the map or data contained herein shall be at the users' sole risk. **Data Sources: SCAG 2017**

Figure Exported: 7/12/2018 By: gvalenzuela Using: \\woodardcurran.net\shared\Projects\RMC\SD\0574 - CVWD\0574-002 Coachella IRWM Plan Update\03_GIS\2018 IRWM-SWR Plan Update\GIS\MXDs\Fig 2-11 Land Use.mxd

2.4 Water Supplies and Demand

This section describes the water supply and demand projections for at least a 20-year planning horizon.

Historical and projected water supply and demand for the Coachella Valley is available in the UWMPs of the Region's water purveyors, the Coachella Valley WMP, and the Mission Creek-Garnet Hill WMP. Water supplies and demands are presented in this section using information from the WMPs and the UWMPs. The UWMP planning areas are the same as CVRWMG urban water service areas, while the WMP planning areas are largely based on groundwater basin and population centers. Together, the UWMPs from five of the CVRWMG agencies provide an understanding of the water supplies and demands in the CVRWMG urban water services areas, while the WMPs provide a generally broader understanding of overall regional water supplies and demand. Cumulatively, these regional planning documents provide an understanding of water supplies and demands throughout the Region; however, there is potential that some supply and demand in unincorporated, rural areas that rely upon private groundwater pumping may not be accounted for. Although there may be slight differences between the two sets of planning documents (UWMPs and WMPs) as each document considers different data; the CVRWMG agencies work collaboratively to improve consistency in both the groundwater management and urban water management planning efforts.

2.4.1 Water Supply

*This section complies with the **Watershed Identification** requirements for the SWRP by describing local entities that provide potable water supplies and estimated volume of potable water provided.*

Section 2.2.2 Water Systems and Distribution (above) provides a detailed discussion of the various water supply sources for the Coachella Valley. **Table 2-8** provides information about each non-groundwater supply source discussed in *Section 2.2.2 Water Systems and Distribution* as presented in the Coachella Valley WMP and the Mission Creek-Garnet Hill WMP.

Table 2-8: Summary of Coachella Valley Non-Groundwater Supply Sources

Supply Source	Approximate Supply Volume (AFY)
SWP Exchange[1]	97,050-126,165
Colorado River[2]	397,000-459,000
Natural Surface Inflow[3]	72,200
Recycled Water[4]	13,100
Total	**579,350 – 670,465**

1. Table A SWP allocation (194,000 AFY) is subject to annual allocations. The number listed represents the SWP reliability of 50% and 65% representing the low end and high end of expected long-term reliability. Actual SWP water is not received in the region due to limitations in the infrastructure to deliver it. The SWP water into the region is exchanged for Colorado River water as part of an agreement with Metropolitan Water District of Southern California (MWDSC).
2. Colorado River allocation is subject to the QSA. The number listed represents the scheduled deliveries for years 2016-2026 of 362,000-424,000 AFY respectively, and an additional 35,000 AFY through an Exchange Agreement with the MWDSC.
3. Natural surface inflow is approximately 10,000 AF in the Mission Creek Garnet Hill Subbasin, 2,200 AF in the Desert Hot Springs Subbasin, and 60,000 AF in the Whitewater River (Indio) Subbasin

Source: CVWD et al. 2013; CVWD 2012

4. Recycled water is available from CVWD's WRP-7 and WRP-10, and City of Palm Springs/DWA.

Each water agency in the Region has different supply availability depending on various factors such as water source type or distribution systems. The following tables (**Table 2-9** and **Table 2-10**) show the 2017 water supply and projected supply conditions of each service agency under normal water year conditions from 2020-2040 as reported in each agency's UWMP. Refer to table footnotes for details on included supplies and sources of more detailed information.

Table 2-9: Total 2017 Urban Water Supply for the CVRWMG Agencies

Agency	Total Water Supply (AFY)
CVWD	94,537
CWA	6,236
DWA	29,931
IWA	17,705
MSWD	22,166
Total	**170,575**

Source: 2017 Water Loss Audit Reports (July 2016 – June 2017)

Table 2-10: Total Projected Urban Water Supply for the CVRWMG Agencies

Water Supply (AFY)						
Agency		**2020**	**2025**	**2030**	**2035**	**2040**
CVWD[1]	Potable	113,400	120,100	130,700	137,600	141,000
	Canal Water	1,200	11,000	17,000	26,300	33,300
	Desalinated Water	0	5,000	10,000	15,000	20,000
	Recycled	14,300	27,700	30,800	33,900	36,300
CWA[2]	Potable	12,501	15,973	20,412	26,083	N/A
	Recycled	0	0	0	0	N/A
DWA[3]	Potable	46,700	47,700	48,100	49,700	50,600
	Recycled	6,100	7,000	7,000	7,000	7,000
IWA[4]	Potable	26,000	30,000	40,000	40,000	40,000
	Recycled	1,010	2,360	5,130	7,480	9,250
MSWD[5]	Potable	8,430	9,469	10,508	11,547	12,586
	Recycled	1,120	2,200	3,600	5,000	6,400
Total		**230,761**	**278,502**	**323,250**	**359,610**	**356,436**

1. Source: Tables 6-12, CVWD 2015 Urban Water Management Plan (CVWD 2016a). Projected urban water supply and recycled water production. CVWD distributes untreated Canal water for irrigation use.
2. Source: Table 6-5, CWA 2015 Urban Water Management Plan (CWA 2016). Projected water supplies for a normal year. The UWMP presents projections in million gallons (MG) per year. A conversion rate of approximately 3.07 was used to calculate AFY
3. Source: Table II-1, DWA 2015 Urban Water Management Plan (DWA 2016). Water supplies include surface water, natural groundwater recharge, imported water, groundwater from storage, non-consumptive return, and recycled water.
4. Source: Table 6-9, IWA 2015 Urban Water Management Plan (IWA 2016). IWA supplies include surface water, wholesale water, supplier-produced groundwater, and recycled water.
5. Source: Table 6-9, MSWD 2015 Urban Water Management Plan (MSWD 2016). Supplies include recycled water and local groundwater. Imported water is not included in supply because MSWD does not have direct access to imported water.

2.4.2 Water Demand

The Coachella Valley is expected to continue to experience substantial population growth. Projections from the UWMPs of the Region's water purveyors indicate that 2035 the population within the purveyors' service area is expected to grow to approximately 922,994 permanent residents. Population projections used within the UWMPs of the Region's water purveyors are derived from the U.S. Census in conjunction with projections obtained from the CVAG. CVAG population projections include numbers from the Regional Housing Needs Assessment (RHNA) for use in housing and land use planning. Additional population

growth may take place outside of any of the six CVRWMG urban service areas; such population growth and associated demands is not captured in the UWMPs.

The projected average annual growth rate between 2000 and 2030 is roughly 3%, with the most rapid growth projected to take place around the City of Coachella within the eastern Coachella Valley. Continued growth in seasonal residents is also likely and is not captured in U.S. Census data. Water demands from seasonal residents are included within gallon-per-capita-per-day (GPCD) calculations that are used to assess water conservation targets. The GPCD calculations rely upon historic water demand data, which includes water demands from all users in the Coachella Valley (permanent and non-permanent); however, population numbers for the GPCD calculations only include permanent residents. The use of all water demands but only a portion of water users within the Region has resulted in conservative (higher) GPCD estimations for several of the Region's water purveyors.

Using the Coachella Valley WMP and the Mission Creek-Garnet Hill WMP as the most complete understanding of the water demands for the Region as a whole, total water demand for the Region is projected to increase from 744,389 AFY in 2020 to 850,288 in 2035, which represents an increase of approximately 13% (CVWD et al. 2013; CVWD 2012). **Table 2-11** shows the projected water demand for the Coachella Valley, as presented in the WMPs.

Table 2-11: Water Demand for the Coachella Valley IRWM Region

Water Demand (AFY)						
Source	**2015**	**2020**	**2025**	**2030**	**2035**	**2040**
Coachella Valley WMP	695,400	719,100	752,500	783,300	817,100	850,500
Mission Creek-Garnet Hill WMP	22,281	25,289	27,873	31,214	33,188	35,793
WMP Total	**717,681**	**744,389**	**780,373**	**814,514**	**850,288**	**886,293**
Agency Contribution to Demand Total from UWMPs[1]	458,186	573,041	634,998	669,878	693,560	682,156[3]
Additional Water Users' Contribution to Demand Total[2]	259,4951	171,3481	145,375	144,6361	156,728	204,137[3]
Regional Total	**717,681**	**744,389**	**780,373**	**814,514**	**850,288**	**886,293[3]**

Source: CVWD 2012; CVWD et al. 2013

1. See Table 2-13 below for further information about these total values.
2. Additional water user demands are calculated as the difference between total demand for the Region as reported in the WMPs and Agency Demands from the UWMPs (see Table 2-13 below)
3. The 2040 demand estimates do not include CWA demands as they were not provided in the 2015 UWMP.

The total water demand for the Region as presented in the WMPs and shown in **Table 2-11** is generally higher than the total water demand for the CVRWMG agencies' urban water service areas as reported in the UWMPs (see **Table 2-13** for total CVRWMG agency demand based on the UWMPs). These demand projections were reviewed in both the 2014 and 2016 Status Reports. Due to lower than expected growth rates in the Coachella Valley, these projections have been revised down to reflect actual growth rates and revised growth projections. This difference between the demand projections reported in the WMPs vs. the UWMPs is because the UWMPs only address the water demands of urban customers served by the agencies who prepared UWMPs while the Coachella Valley WMP, and the Mission Creek-Garnet Hill WMP identify and address all water demands within the Region. In addition to the urban demands reported in the UWMPs, there are additional water uses in the Coachella Valley, including urban demands that are met by private pumpers, golf course demands, and agricultural demands. These additional demands from water users that are not captured in the UWMPs are shown in **Table 2-11** as the difference in demand values between the WMPs and the UWMPs. **Table 2-12** shows the 2017 urban water demands for the CVRWMG water agencies. As shown, water demands have continued to decrease due to the various water conservation programs being implemented throughout the Coachella Valley.

Table 2-12: 2017 CVRWMG Agency Demand

Water Demand (AFY)	
Agency	**Demand**
CVWD	83,231
CWA	6,132
DWA	27,648[1]
IWA	16,710
MSWD	6.506
Total	**133,728**

Source: 2017 Water Loss Audit Reports (July 2016 – June 2017)

1. The demands in 2017 are affected by multiple demand management and water use efficiency measures applied during the recent/current drought, as well as lower than expected population growth due to the 2008 economic downturn.

Table 2-13: Total CVRWMG Agency Projected Demands

Actual and Projected Water Demand (AFY)						
Agency	**Use Sector**	**2020[2]**	**2025**	**2030**	**2035**	**2040**
CVWD	Municipal	114,600	136,100	157,700	178,900	194,300
	Recycled	14,300	27,700	30,800	33,900	36,300
	Agricultural	300,000	296,400	290,000	274,600	263,100
	Golf Irrigation	47,900	67,100	70,300	70,900	71,400
	Other Non-Urban, Non-Potable Uses	4,700	4,700	4,700	4,700	4,700
	Subtotal	*481,500*	*532,000*	*553,500*	*563,000*	*569,800*
CWA	Municipal	12,501	15,973	20,412	26,083	N/A
	Subtotal	*12,501*	*15,973*	*20,412*	*26,083*	*N/A*
DWA	Municipal	36,570	38,266	40,068	41,870	43,460
	Recycled	6,100	7,000	7,000	7,000	7,000
	Subtotal	*42,670*	*45,266*	*47,068*	*48,870*	*50,460*
IWA	Municipal	25,810	27,730	29,660	31,580	33,660
	Recycled	1,010	2,360	5,130	7,480	9,250
	Subtotal	*26,820*	*30,090*	*34,790*	*39,060*	*42,910*
MSWD	Municipal	8,430	9,469	10,508	11,547	12,586
	Recycled	1,120	2,200	3,600	5,000	6,400
	Subtotal	*9,550*	*11,669*	*14,108*	*16,547*	*18,986*
Total		**573,041**	**634,998**	**669,878**	**693,560**	**682,156[1]**

1. The total 2040 water demand projection does not include demands from CWA, as this projection was not provided in the 2015 UWMP.
2. Due to recent water use efficiency measures and the lower demands currently being observed, the forecast demands for 2020 may not be realized in that year. Forecasts in this table correspond to the most recent demand forecasts available at the time of the production of this plan and are well documented in the agencies' Urban Water Management Plans.

The total potable water (water that meets drinking water standards) demand for the CVRWMG agencies is projected to increase by approximately 47% from 197,911 AFY in 2020 to 289,980 AFY in 2035. (see **Table 2-14** and **Figure 2-12**). Over half of the demand for the CVRWMG agencies' service areas is attributed to non-potable uses – including agricultural and landscape irrigation – in the eastern Coachella Valley (see **Table 2-15** and **Figure 13**). Increases in potable water demand are mainly attributed to population growth. The difference between water supplies presented in **Table 2-10** and the water use projected in **Table 2-14** and **Table 2-15** can be attributed to a difference in non-potable use versus supply. This difference is supplied through untreated Canal water, which is not reported in its entirety in the UWMPs and therefore not wholly accounted for in **Table 2-10**. A breakdown of water demand by agency is shown in **Figure 2-12**.

Demands for water from the CVRWMG agencies are divided between urban uses and agricultural uses. Urban demands are expected to increase at a faster rate than agricultural demands primarily due to population growth. Additionally, future urban growth in the eastern Coachella Valley is expected to be split between vacant parcels and agricultural lands; the agricultural to urban conversion will eventually decrease the overall agricultural demand. Urban uses include domestic, industrial/commercial and golf course use whereas agricultural use includes crop irrigation, fish farming, greenhouses, and farming processes that require water.

Table 2-14: Total Projected CVRWMG Agency Potable Water Use with Conservation[1]

Water Usage (AFY)					
Agency	**2020**	**2025**	**2030**	**2035**	**2040**
CVWD[2]	114,600	136,100	157,700	178,900	194,300
CWA[3]	12,501	15,973	20,412	26,082	N/A
DWA[4]	36,608	38,383	40,157	41,932	43,460
IWA[5]	25,810	27,730	29,660	31,580	33,660
MSWD[6]	8,430	9,469	10,508	11,547	12,586
Total	**197,949**	**227,655**	**258,437**	**290,041**	**284,006**

1. Projections are for a normal water year and based on use reported in agency Urban Water Management Plans. Water use for portions of the Region outside the water purveyors' service areas is not included.
2. Source: Tables 4-1 and 4-2, CVWD 2015 Urban Water Management Plan (CVWD 2016a).
3. Source: Tables 4-3 and 4-5, CWA 2015 Urban Water Management Plan (CWA 2016). Note that tables in the UWMP present use in million-gallons (MG) per year. These numbers have been converted to acre-feet (AF) per year using a conversion of approximately 3.07 AF per MG. Use includes single family residences, multi-family residences, commercial and institutional, industrial, landscape irrigation, agricultural irrigation, and other uses. It does not include "non-revenue" water which includes "apparent losses" and "real losses" as CWA has determined that these are not possible to calculate, nor does it include non-potable water use. CWA did not project water usage to 2040, so the total 2040 value does not include CWA usage.
4. Source: TableVII-1, DWA 2015 Urban Water Management Plan (DWA 2016).
5. Source: Table 4-3, IWA 2015 Urban Water Management Plan (IWA 2016). Use includes single family, multi-family, commercial, institutional, industrial, fire services, and non-revenue water. Does not include non-potable water use.
6. Source: Table 4-3, MSWD 2015 Urban Water Management Plan (MSWD 2016). Total includes single family residential, multi-family residential, commercial, and other uses, as well as system losses. Does not include non-potable water use.

Figure 2-12: Total Projected Potable Water Use with Conservation

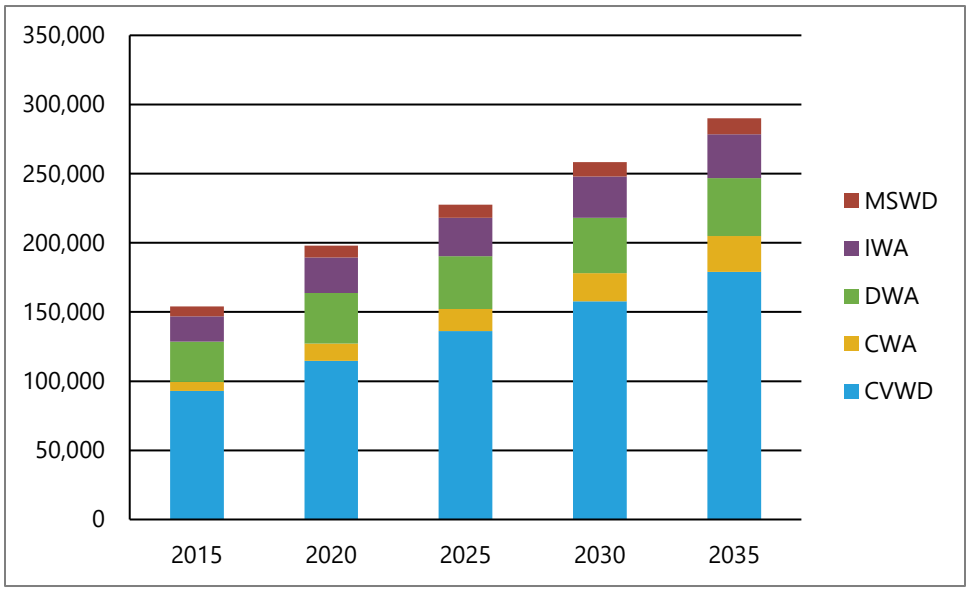
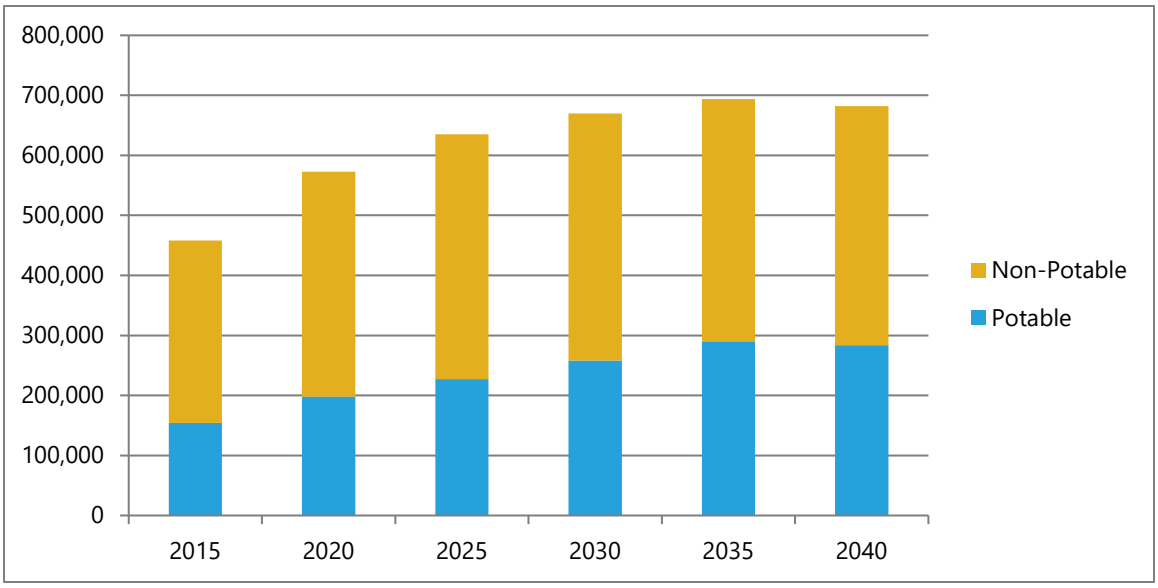


Table 2-15: Total Projected CVRWMG Agency Non-Potable Water Use with Conservation[1]

Water Usage (AFY)					
Agency	**2020**	**2025**	**2030**	**2035**	**2040**
CVWD[2]	366,900	395,900	395,800	384,100	375,500
CWA[3]	-	-	-	-	-
DWA[4]	6,100	7,000	7,000	7,000	7,000
IWA[5]	1,010	2,360	5,130	7,480	9,250
MSWD[6]	1,120	2,200	3,600	5,000	6,400
Total	**375,130**	**407,460**	**411,530**	**403,580**	**398,150**

1. Projections are for a normal water year and include water losses and recycled water use. Water demand for portions of the Region outside the water purveyors' service areas is not included.
2. Source: Tables 4-4 and 4-5, CVWD 2015 Urban Water Management Plan (CVWD 2016a).
3. City of Coachella 2015 Urban Water Management Plan (CWA 2016). The City of Coachella does not have recycled water production infrastructure, though will conduct a feasibility study when updated its sewer master plan in the near feature. Pending the result of the feasibility study, tertiary treatment will be added to the city's current secondary treatment plant. Many developments within CWA's service area have been constructed with recycled water pipelines, and only await delivery of recycled water to use these systems.
4. Source: Table VII-1, DWA 2015 Urban Water Management Plan (DWA 2016). Assumes total projected non-potable water use to be the same as recycled water use.
5. Source: Table 4-3, IWA 2015 Urban Water Management Plan (IWA 2016). Assumes total projected non-potable water use to be the same as recycled water.
6. Source: Table 4-3, MSWD 2015 Urban Water Management Plan (MSWD 2016). Assumes total projected non-potable water use to be the same as recycled water use.

Figure 2-13: Projected Potable vs. Non-Potable Water Use[1]



1. Non-potable demands include dedicated irrigation accounts and recycled water projections. It does not include outdoor water use from residential and commercial accounts, which can between 60-80% of those accounts.

A discussion of each agency's water demand is provided below.

According to the **CWA** 2015 UWMP, projected water demand for the City of Coachella in the next 20 years is expected to increase at a similar rate compared to the projected increase in the City of Coachella's sphere of influence population. Projected potable water demand in 2035 is expected to increase to 26,082 AFY. The majority of the demand is for residential uses; there are no agricultural water demands. Groundwater is the principal source of municipal water supply in the City of Coachella. To meet future demands and reduce the use of groundwater, the City of Coachella will need to consider other water supply opportunities, including use of treated Colorado River water from Coachella Canal or other water sources that may be negotiated, and potentially a Region-wide desalination of local semi-perched brackish groundwater. The City of Coachella plans to implement recycled water in the future to offset potable demands (CWA 2016).

As described in the **CVWD** 2015 UWMP, potable water demand within the CVWD service area is expected to increase to 198,300 AFY by 2040, with the majority of the demand for residential uses followed by landscape uses. Non-potable water demands (agriculture, golf course, and municipal) are expected to increase to 375,500 AFY by 2040. Per capita demand will steadily decrease over the long-term (through 2040) through tiered water rates, landscaping conservation, CVWD's landscape ordinance, and other water conservation programs and policies, thus reducing demand. The principal water supplies of the CVWD are local groundwater and imported water. In addition, CVWD also produces recycled water and has other water transfers in place. With continued water conservation and implementation of additional, drought-resilient supplies, CVWD would have enough supplies to meet demands under normal, single-, and multiple-dry year scenarios (CVWD 2016a).

DWA reports that projected potable water demand in 2040 is expected to be 43,460 AFY. DWA's supply portfolio includes groundwater, surface water, imported water and recycled water. Demand will exceed supply during normal, single-dry year, and multiple-dry years due to SWP Exchange water delivery reductions (if DWA receives less than 60% of its allocations), unless DWA continues to extract groundwater in storage. Without consistently importing water to offset overdraft in the Whitewater River Subbasin, significant reduction of groundwater in storage will occur (DWA 2016). If DWA receives at least 58% of its Table A allocations, DWA would have sufficient supplies to meet demands through 2040.

As specified in the **IWA** 2015 UWMP, projected potable water use in 2040 will be 33,660 AFY, without conservation. This would consist primarily of residential uses, followed by commercial uses. Implementation of a moderate conservation program could reduce demands substantially, by as much as 25%, through 2040. Currently, groundwater is the sole supply source for IWA. Additional water supplies, including treated Colorado River water transported via the Coachella Canal and recycled water are anticipated to be available by 2020 to meet growing water demands (IWA 2016).

MSWD currently obtains its water exclusively from groundwater, primarily from the Mission Creek Subbasin and the Garnet Hill Subbasin. In the future, MSWD intends to produce recycled water to offset demand. Total potable water demand in 2040 is projected to be 12,586 AFY during a normal water year. Based on the findings of MSWD's water reliability analysis, MSWD would be able to meet all of its demands during all normal, single-dry year and multiple-dry year periods (MSWD 2016).

Water Rates

Each of the five CVRWMG water agencies levy a monthly service or meter charge on their customers; the rates used in these charges are based on the meter size. For CVWD, this monthly service charge is also based upon which rate area a customer is located. **Table 2-16** shows the monthly service or meter charges for each agency based on current water rates and charges.

Table 2-16: Monthly Service or Meter Charges

Meter Size	CVWD	CWA	DWA	IWA	MSWD
5/8″	-	$13.80	$22.48	$21.16	-
3/4″	$6.92 - $17.14	$13.80	$22.48	$21.16	$11.36
1″	$11.51 - $28.59	$19.32	$22.48	$52.90	$18.93
1.5″	$23.02 - $57.17	$24.84	$42.92	$105.81	$37.85
2″	$36.85 – $91.52	$40.02	$67.44	$169.26	$60.55
3″	$69.05 – $171.58	$151.82	$132.85	$317.37	$113.50
4″	$115.08 – $285.93	$193.22	$206.43	$528.96	$189.14
6″	Contact CVWD	$289.83	$410.82	$1,057.88	$378.27
8″	Contact CVWD	$400.24	$656.08	$1,692.61	-
10″	Contact CVWD	-	$1,718.90	$1,692.61	-
12″	Contact CVWD	-	$2,618.56	$1,692.61	-

Source: (CVWD 2018); (City of Coachella 2018); (DWA 2018); (IWA 2018); (MSWD 2018)

In addition to the monthly service or meter charges provided in **Table 2-16**, agencies charge customers for the total amount of water used, in units of hundred cubic feet (HCF) (**Table 2-17**). Four of the CVRWMG agencies, CVWD, CWA, IWA, and MSWD, use a tiered rate system. The tiered rate systems vary based on the amount of water used; however, the number of tiers and cut-off points for each tier varies by agency (**Table 2-18**). IWA distinguishes between residential and commercial customers, and charges commercial customers a single rate for both Tier 1 and Tier 2 levels of use. IWA tiering is determined by water budgets for IWA customers, which vary based on size of lot, property use, and number of people in a household (IWA 2017). DWA does not use a tiered rate system but does impose an increased rate for customers at higher elevations, based on DWA Zone Areas (locations) and has a drought surcharge that can be imposed when necessary.

Table 2-17: 2017 Tiered Agency Water Rates

Tier	CVWD	CWA	IWA	MSWD
1	$0.95	$1.50	$0.97 - $1.31	$1.60-$1.73
2	$1.32	$1.65	$1.46	$2.18 - $2.36
3	$2.46	-	$1.95	-
4	$4.67	-	$2.92	-
5	$6.13	-	$3.89	-

Source: (CVWD 2016b); (City of Coachella 2017); (DWA 2017); (IWA 2017); (MSWD 2017)

Table 2-18: Water Use Tiers

Tier	CVWD	CWA	IWA	MSWD
1	≤8 HCF	<41 HCF	Residential – Indoor Water Budget; Tiers 1 & 2: Commercial – 3-year average water budget by month	<13 HCF for SFR <8.3 HCF for MFR
2	≤100% of water budget	>41 HCF	Residential – outdoor water budget	>13 HCF for SFR >8.3 HCF for MRF
3	100%-175% of water budget	-	All accounts – inefficient water use	-
4	175%-300% of water budget	-	All accounts – excessive water use	-
5	≥300% of water budget	-	All accounts – wasteful water use	-

Source: (CVWD 2016b); (City of Coachella 2017); (DWA 2017); (IWA 2017); (MSWD 2017)

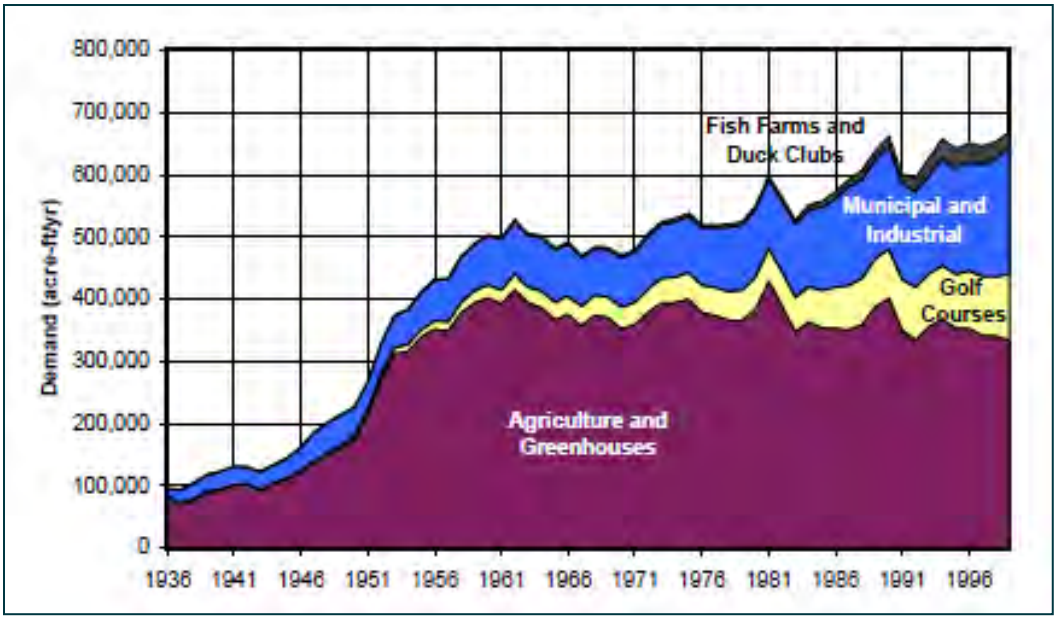
Trends

In 1936, total water demand for the Coachella Valley was approximately 96,300 AFY and consisted mostly of agricultural demand. Between 1936 to the early 1960s, agricultural demand rose significantly due to the water availability provided by the establishment of the All American Canal. Since then, water demand has been reduced through the implementation of better irrigation management and efficiency. In 1936, agricultural water demand accounted for 87% of total demand; currently, that demand has decreased to 54% (CVWD 2005). By 1999, Coachella Valley demands were approximately 668,900 AFY. Total agricultural water demand in 1999 was 358,700 AFY (54%) and 310,200 AFY for urban demand (46%). This represents a nearly seven-fold increase in demand during this 64-year period (see **Figure 2-14**). **Figure 2-14** shows that agricultural water demand varies considerably on an annual basis. Agricultural water demand is dependent on many factors, including the number of acres farmed, the type of crops planted, local climatic conditions, and agricultural water use efficiency measures used. Most of Coachella Valley's agricultural activities occur in the eastern Coachella Valley. As development in the Coachella Valley increases, agricultural land will be converted to urban uses, reducing total agricultural water demand over time, even as Region-wide water demand increases (CVWD 2012).

Urban water demand historically consisted of domestic and industrial building, services, and needs. In 1936, the total Coachella Valley urban demand was 12,200 AFY; in 1999 this value rose to 310,200 AFY (CVWD 2005). Urban demand has jumped from 13% in 1936 to 46%in 1999. The higher demands can be attributed to the development of residential neighborhoods, hotels, resorts and country clubs.

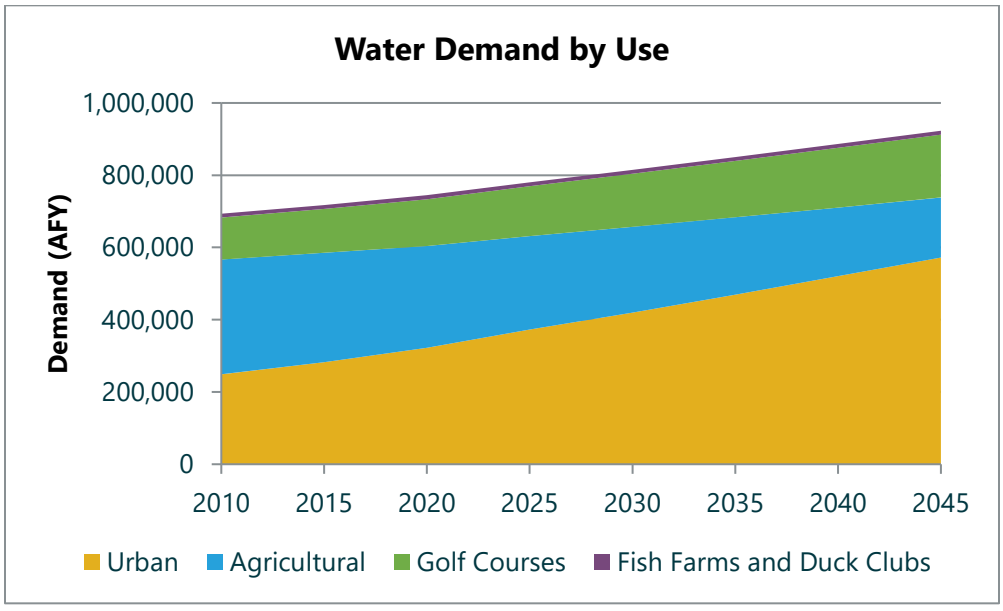
Golf courses are not domestic water customers as they either receive non-potable water or pump groundwater privately. Although golf courses represent a significant portion of water users, the CVAG Coachella Valley-wide model water conservation ordinance, limits the amount of turf on new courses, reducing projected water demand from 900 AFY per 18-hole course to 615 AFY per 18-hole course (CVWD et al. 2013). CVWD also has a landscape ordinance that requires all new landscaping to include water-efficient irrigation systems. Projected water demand in the Coachella Valley, by use, is shown in **Figure 2-15**.

Figure 2-14: Total Historical Water Demands by Type of Use in CVWD Service Area



Source:(CVWD 2002)

Figure 2-15: Projected Water Demands by Type of Use in Coachella Valley IRWM Region



Source: (CVWD 2012); (CVWD et al. 2013)

Note: Duck Clubs are private clubs for duck hunters. Fish farms and duck clubs are defined as recreational non-potable water uses in the (CVWD 2016a).

2.5 Water Quality

This section describes the current and future (or proposed) water quality conditions in the Region, including those related to stormwater quality compliance.

This section discusses current water quality conditions within the Region. For information regarding future or proposed water quality conditions, as well as water quality protection and improvement needs, refer to *Chapter 3 Issues and Needs*, *Section 3.1.5 Water Quality*. Note that the quality of local water supplies will vary depending on the water source.

Water quality objectives for the Coachella Valley are established within the Water Quality Control Plan for the Colorado River Basin Region 7 (Basin Plan) (Colorado River Regional Board 2006). The Basin Plan is intended to protect surface and groundwater quality throughout the Colorado River Basin, which includes the Whitewater River Watershed. Maximum Containment Levels (MCLs), established by the USEPA under the Safe Drinking Water Act, and MCLs established by the SWRCB and the Department of Drinking Water (DDW) are the standard by which water quality is described throughout this section. MCLs are the maximum allowable concentration of contaminants in surface or groundwater to be used for drinking water supply.

2.5.1 Groundwater Quality

*This section complies with the **Watershed Identification** requirements for the SWRP by describing the general quality of groundwater resources within the watershed.*

Groundwater supply used for potable uses from the Coachella Valley Groundwater Basin is generally of high quality. In addition, disinfection is regularly provided as a precautionary measure before distribution for potable uses. Some areas of the Coachella Valley Groundwater Basin naturally contain elevated levels of salinity including areas of low natural recharge near the base of mountains, geological fault systems, shallow groundwater in areas below sea level, and groundwater found below about 2,000 feet below mean sea level. However, groundwater quality issues have arisen in isolated areas throughout the Valley. Naturally occurring substances such as uranium, arsenic, chromium, fluoride, and ammonium perchlorate have been detected, and are likely due to natural geologic conditions since they have been found to be present in the California desert aquifers (Dawson & Beliz, 2012). Further, some localized areas have also seen elevated nitrate levels.

Basin-wide groundwater quality varies naturally throughout the Coachella Valley depending on proximity to faults and other hydrogeological features. Groundwater quality can also vary depending on proximity to recharge basins or to the presence of surface contaminants. At individual wells, water quality depends on the depth of the well and screened intervals. Public water systems in the Region consistently monitor groundwater production wells to ensure compliance with drinking water quality standards. Water supply agencies in the Region also monitor the groundwater to comply with permit requirements and as part of other required and voluntary groundwater monitoring programs. **Table 2-19** provides a summary of recent groundwater quality concentrations. Water quality monitoring from CVRWMG wells shows that in the western Coachella Valley groundwater meets all existing MCLs for drinking water (see **Table 2-19**). However, arsenic levels exceed MCL drinking water standards in localized areas, and CVWD treats groundwater in some areas for arsenic such that municipal water served by CVWD meets all drinking water

standards. Several small private water systems in mobile home parks in eastern Coachella Valley have data that shows groundwater quality exceeds the MCLs for arsenic. Many private water systems supplying water to small mobile home parks in the eastern Coachella Valley do not test or report on drinking water quality; therefore, data on MCL exceedances are likely undercounted. Part of the *Coachella Valley Disadvantaged Community (DAC) Outreach Program,* household surveys were conducted within DACs to determine residents' water resources concerns and to develop potential projects to address those concerns (refer to *Chapter 4 Disadvantaged Communities*).

In July 2014, the California Department of Public Health (CDPH) Division of Drinking Water (now part of the SWRCB) established the nation's first MCL for chromium-6, with a standard of 10 micrograms per liter (µg/L). However, in May 2017, the Superior Court of Sacramento County issued a judgement invalidating the MCL for chromium-6 because economic feasibility of complying with the MCL wasn't considered. Upon adoption in 2014, approximately 50% of the Region's municipal wells became non-compliant. The cost for the Region to comply with any future chromium-6 MCL containing new chromium-6 levels above the 10 µg/L MCL is of significant concern. The SWRCB has been directed to conduct further studies to determine a more economically feasible standard and is expected to adopt a new MCL in the coming years. The CVRWMG agencies are continuing to study chromium-6 reduction technologies in anticipation of a future MCL.

Perched groundwater naturally contains elevated levels of total dissolved solids (TDS). Six parameters assessed by CVWD between 1996 and 2004 had concentrations that exceeded either a primary or secondary drinking water standard at various locations. These included TDS, nitrate, sulfate, chloride, fluoride and arsenic. Most water pumping for domestic purposes has TDS concentrations of less than 500 milligrams per liter (mg/L). Groundwater pumped for agricultural and domestic purposes typically contain small concentrations of silts, clays, and fine sands. As discussed below in the section regarding salinity, groundwater overdraft reduction is anticipated to increase groundwater quality, particularly within the eastern Coachella Valley where perched groundwater is found.

Riverside County Department of Environmental Health (DEH), State of California, and USEPA all have groundwater monitoring programs in the Region. Government and non-profit organizations that are concerned about groundwater quality include the CVRWMG, Desert Alliance for Community Empowerment (DACE), U.S. Department of Agriculture (USDA) Rural Development Office, CDPH, Torres-Martinez Desert Cahuilla Indians, Agua Caliente Band of Cahuilla Indians, Rural Community Assistance Corporation (RCAC), Environmental Justice Coalition for Water (EJCW), Poder Popular of the Coachella Valley, California Rural Legal Assistance Inc. (CRLA), Pueblo Unido CDC, and Building Healthy Communities.

Groundwater Overdraft and Salinity

Overdraft of natural groundwater supplies has increased with increasing demand, because the extraction rates exceed natural recharge rates. The Coachella Valley Groundwater Basin has been in overdraft since the early 1980s (CVWD 2012). The continued decline of groundwater levels could result in substantial degradation of water quality in some areas of the groundwater basins; conversely, groundwater overdraft reduction can improve groundwater quality. Information from CVWD shows that in 2012 there was a cumulative decrease in overdraft in the East Whitewater River Subbasin Management Area (eastern Coachella Valley), resulting in a gain of 8,199 AF of water storage during that year (CVWD 2013). Groundwater overdraft reductions are anticipated to improve groundwater salinity concentrations in the eastern Coachella Valley by 1) preventing the downward flow from the naturally saline upper aquifers in

the eastern Coachella Valley to the high-quality lower aquifers and, 2) preventing the intrusion of highly saline Salton Sea water into the eastern Coachella Valley aquifer (CVWD 2012). Leakage of poor-quality water from the upper aquifers is controlled in the eastern Coachella Valley by maintaining an upward pressure gradient. Rather than leak into the lower aquifers, the degraded water flows into manmade drains to the Salton Sea. The Coachella Valley WMP discusses that one of the ways salinity will be managed throughout the Coachella Valley Groundwater Basin is via exportation to the Salton Sea. With regards to salt management in the Region, a Salt and Nutrient Management Plan (SNMP) was prepared in June 2015 for the Coachella Valley, the intent of which is to manage all sources contributing salt and nutrients on a basin-wide or watershed basis to ensure that water quality objectives are achieved and beneficial uses are protected (refer to *Chapter 10 Agency Coordination* for more information on the Region's salt and nutrient management planning effort).

Located south of Coachella Valley, the Salton Sea has salinity levels about 45% higher than that of ocean water (CVWD 2012). This water is too salty to grow crops, to irrigate golf courses or lawns, or to drink. Having no outlet, Salton Sea water evaporates, leaving behind concentrated salt water. Historically, groundwater pressure levels in the lower aquifers have been high enough to keep denser Salton Sea water from displacing the high-quality waters in adjacent freshwater aquifers (CVWD 2012). Groundwater overdraft management in the eastern Coachella Valley will retain these pressure conditions and prevent saltwater intrusion from the Salton Sea and naturally saline perched groundwater. Maintaining positive pressure is a priority as saltwater intrusion is extremely expensive, if not impossible to address, as high levels of treatment would be required to remove salts from the groundwater basins (CVWD 2012). Groundwater currently accounts for about 63% of the Coachella Valley's total water supply and nearly 100% of the drinking water supply. Saltwater intrusion would result in the loss of the groundwater resource which could seriously affect the Coachella Valley economy.

Continued groundwater overdraft also increases the possibility of land subsidence within the eastern Coachella Valley. As groundwater is removed from the lower Coachella Valley groundwater aquifers, the soil begins to compress from the weight of the ground above, causing subsidence. Subsidence may cause damage to streets and highways and could result in the rupture of water mains, sewer lines and gas pipes. Building foundations might crack, leading to required and costly maintenance. Structures that cover large areas or have height are especially vulnerable. Railroads, earthen dams, wastewater-treatment facilities and canals are also vulnerable to damage from subsidence.

Table 2-19: Quality of Water Sources

Water Source	TDS (mg/L)	Nitrate (mg/L)	Perchlorate (µg/L)	Uranium (pCi/L)	Selenium (µg/L)	Arsenic (µg/L)
Consumer Acceptance Level (Drinking Water)	500-1,500[1]					
MCL (Drinking Water)		10	6	20	50	10
Coachella Canal (Colorado River)	690-820 (avg. 740)[2]	<0.4[2]	<4[3]	2.3[2]	<5[3]	2.0[3]
Groundwater Recharge (Colorado River Aqueduct Turnout – From San Jacinto Tunnel West Portal)	568 – 633 (avg. 607)[5]	<0.4[5]	<4[5]	2.6 – 5.1[6]	<5[7]	2.7[7]
Groundwater (Eastern and Western Coachella Valleys)	83 – 1500 (avg. 280)[8]	<0.4 – 9.0 [8]	<4[8]	<1 – 9.7 (avg. 3.9)[8]	<5 – 5.6 (avg. <5)[8]	12-91[9]
Surface Water (Chino Canyon Creek)	136 – 152 (avg. >143)[4]	<2[4]	NA	NA	NA	<1[4]
Surface Water (Snow Creek)	57-81 (avg. >71)[4]	<2[4]	NA	NA	NA	<1[4]
Surface Water (Falls Creek)	NA	NA	NA	NA	NA	NA

1. The value of 500 mg/L corresponds to the recommended value for consumer acceptability for TDS contaminant levels. The value of 1,000 mg/L corresponds to the upper limit of consumer acceptability, with the value of 1,500 mg/L corresponding to the short-term limit.
2. Source: CVWD data, 2017
3. Source: CVWD data, December 14, 2017 result
4. Source: USGS data, range results for 2006-2017
5. Source: MWD data, range and average results for 2017. Perchlorate data, 2009.
6. Source: MWD data, range 2011
7. Source: MWD data, 2013
8. Source: CVWD data, most recent range and average results for active CVWD wells in Whitewater River Subbasin (CVWD 2017b Domestic Water Quality Summary). Other wells in certain regions of the subbasin have elevated levels of these constituents in comparison.
9. Source: (CVWD 2011). Arsenic levels in private wells that exceed regulatory standards. Data provided in this table only includes wells exceeding the MCL, and none of these wells are owned by CVRWMG agencies.

NA: Not analyzed

2.5.2 Imported Water Quality

Although both imported water supplies (described above) come from the Colorado River, their water qualities are different. The Coachella Canal diversion at Imperial Dam is further downstream than the Colorado River Aqueduct diversion at Parker Dam. The location of the Coachella Canal diversion results in higher concentrations of TDS and other contaminants and lower concentrations of other contaminants in Canal water compared to SWP Exchange water.

The TDS concentrations in SWP Exchange Water have averaged approximately 660 mg/L since 1973 (CVWD 2012). Total hardness varies from 54 to 131 mg/L as CaCO3. TDS and hardness are typically

lower in wet years and higher in dry years. In spite of its lower mineral content, SWP water contains more total organic carbon as well as bromide, both of which are precursors for creating disinfection byproducts. Since the Region does not directly receive SWP water – rather, they receive SWP Exchange water – its quality does not impact the groundwater basin. However, CVWD and DWA, as well as other partner agencies, have evaluated the feasibility of a direct connection with SWP, to connect to the Whitewater and Mission Creek GRF (MSWD 2016).

TDS concentrations of Colorado River delivered via the Coachella Canal have averaged 750 mg/L since 1949 (CVWD 2018). Historical water quality testing has shown low levels of perchlorate, selenium, and uranium in Colorado River supplies below drinking water MCLs Uranium in the groundwater basin is naturally occurring.

Concentrations of TDS and other constituents for other water sources are listed in **Table 2-19** (above). The table shows that imported water continues to meet water quality objectives for all beneficial uses.

2.5.3 Surface Water Quality

*This section complies with the **Watershed Identification** requirements for the SWRP by describing water quality priorities within the watershed and the general quality of surface water resources within the watershed.*

Quality of the surface water supplies currently utilized by DWA (as diverted from Snow Creek, Fall Creek, and Chino Creek) is good, with only disinfection needed before distribution for potable uses. DWA is considering filtration for Snow Creek and Falls Creek to maximize the Agency's existing diversion rights. DWA is also studying the potential diversion of surface water from the Whitewater River for potable water distribution. **Table 2-19** (above) provides a summary of recent surface water quality concentrations. As shown surface water concentrations have not exceeded any MCLs. The concentrations shown for TDS and nitrates are both well within the MCLs.

The Regional Board's Surface Water Monitoring Program was developed in 1980 as an outgrowth of the State's Primary Monitoring Network. Its goal has been to characterize the water quality of the Region's surface water bodies. Quarterly sampling was conducted on major water bodies and annual sampling was conducted on other surface waters. Analyses were conducted for pH, turbidity, TDS, total suspended solids (TSS), volatile suspended solids, settleable solids, phosphate, nitrate, ammonia, methyl blue active substances (MBAS), biological oxygen demand (BOD), chemical oxygen demand (COD), and fecal coliform. Field measurements were made for dissolved oxygen, temperature, pH, flow rate, and conductivity. IN 2000, the Regional Board started the Surface Water Ambient Monitoring Program (SWAMP) as the unifying program that coordinates all water quality monitoring conducted by the State and Regional Water Boards. Data from this program is periodically entered into the federal water quality Storage and Retrieval (STORET) data system.

When establishing water quality objectives, Division 7 of the California Water Code requires the Regional Board to consider beneficial uses. **Table 2-20** shows present and potential beneficial uses for waterbodies in the Coachella Valley.

Table 2-20: Beneficial Uses of Surface Waters in the Coachella Valley

Waterbody	MUN	AGR	FRSH	GRW	REC I	REC II	WARM	COLD	WILD	POW	RARE
Big Morongo Creek	P	X		X	X	X	X		X		X
Coachella Canal	P	X		X	X	X	X		X		X
Coachella Valley Stormwater Channel			X		X	X	X		X		X
Chino Canyon Creek	X			X	P	X	X		X		
Lake Cahuilla	P	X			X	X	X	I	X		
Little Morongo Creek	P	X		X	X	X	X		X		
Mission Creek	P	X		X	X	X	X		X		
Whitewater River	X	X		X	X	X	I	X	X	X	

Abbreviations:
MUN – Municipal and Domestic Supply
AGR – Agricultural Supply
FRSH – Freshwater Replenishment
GWR – Groundwater Recharge
REC 1 - Water Contact Recreation
REC II - Non-Contact Water Recreation
WARM - Warm Freshwater Habitat
COLD - Cold Freshwater Habitat
WILD - Wildlife Habitat
POW - Hydropower Generation
RARE - Preservation of Rare, Threatened or Endangered Species
P – Potential Beneficial Use
X – Existing Beneficial Use
I – Intermittent Beneficial Use

Note: Recreational use (REC I and REC II) of the Coachella Valley Stormwater Channel is noted in the Colorado River Basin Plan as an unauthorized use.

As seen in **Table 2-21**,only one water body in the Region is currently listed on the Regional Board's Clean Water Act Section 303(d) List of Water Quality Limited Segments (USEPA final decision: October 11, 2011): the CVSC. The CVSC is listed as impaired for pathogens (E. coli as the sole bacterial indicator) for the 17 miles prior to conveyance to the Salton Sea, beginning at Dillon Road, while the final 2 miles prior to the Salton Sea, beginning at Lincoln Street, is also listed for polychlorinated biphenyls (PCBs) and the pesticides toxaphene, dichlorodiphenyltrichloroethane (DDT), and dieldrin (SWRCB 2010). The Salton Sea is listed as impaired for nutrients, salts, and selenium, but lies outside the IRWM Region. As part of the 2012 Integrated Report, nitrogen ammonia (total ammonia) and toxicity were added as impairments to the CVSC.

Table 2-21: 303(d) Listed Water Bodies

Water Body	Segment	303(d) Listing
Coachella Valley Stormwater Channel	Only applies to a 2-mile area of the CVSWC from Lincoln Street to the Salton Sea	DDT, Dieldrin, PCBs, Toxaphene
	Only applies to a 17-mile area of the CVSWC from Dillon to the Salton Sea	Pathogens
	All	Nitrogen ammonia (Total Ammonia) Toxicity

2.5.4 Recycled Water Quality

In some scenarios, nitrate has been detected at higher concentrations than MCL standards in recycled water. This can potentially adversely affect groundwater quality. However, studies have indicated that little nitrate moves past the root zone in well managed golf courses, which allows reduced recycled water users' application of nitrate-rich fertilizers. It is important for recycled water users to identify water quality concentrations such as boron, phosphorus, nitrogen and/or pH in order to adjust fertilization and irrigation practice accordingly (California Agricultural Water Stewardship Initiative 2010).

Therefore, agencies like CVWD recognize the water quality benefit of utilizing recycled water for golf course irrigation rather than sending treated wastewater to percolation-evaporation ponds. To capitalize on this benefit, the CVWD is looking to increase the number of golf courses in the western Coachella Valley and minimize the amount of wastewater percolation (CVWD 2016a).

There are many actions that agencies are taking to maximize the water quality benefit of using recycled water for irrigation purposes. Currently, CVWD has a policy that requires new golf courses to use either recycled water or canal water where available (CVWD 2016a). In addition, CVWD is in the process of design for its Non-Potable Water Use Expansion Program, which was funded as part of the Proposition 84-Round 2 Implementation Grant Application. The purpose of this project is to take advantage of underutilized existing non-potable distribution systems in both the eastern Coachella Valley (the Coachella Canal) and western Coachella Valley (the recently-completed Mid-Valley Pipeline) to deliver an alternative source of water to users who currently depend on groundwater pumping. There are over 110 golf courses in the Coachella Valley that have access to non-potable water, and the CVWD has entered an agreement with 43 of these that requires users to meet 80% or more of their demand with recycled water. As mentioned in *Section 2.2.4 Non-Potable Water*, the program would expand the non-potable water customer base to include seven more golf courses – three in the western Coachella Valley (which will be connected the Mid-Valley Pipeline) and four in the eastern Coachella Valley (which will be connected to the Coachella Canal system).

2.5.5 Stormwater Quality and Water Quality Compliance

*This section complies with the **Watershed Identification** requirements for the SWRP by describing water quality priorities within the watershed and the general quality of surface water resources within the watershed. This section also complies with the **Water Quality Compliance** requirements by identifying activities that contribute to pollution of runoff, describing how the IRWM/SWR Plan is consistent with and assists in compliance with TMDL implementation plans and NPDES permits, and identifying how the IRWM/SWR Plan meets all applicable permits.*

Pollutants in stormwater and dry weather runoff can end up in surface waters and can contribute to the impairment of beneficial uses. *Section 2.5.3 Surface Water Quality* identified the water body pollutant combinations causing impairment of beneficial uses of surface waters in the Region. The following sections describe the activities that contribute to pollution of stormwater and dry weather runoff related to these impairments. This section also describes the water quality compliance requirements associated with NPDES permits that address stormwater runoff in the Region, the existing TMDL implementation plan, and how the IRWM/SWR Plan is consistent with these documents. Projects submitted to the IRWM/SWR Plan were reviewed by the MS4 Permittees, are in line with waste discharge requirements, and assist in compliance with the TMDL Implementation Plan for Bacterial Indicators, as discussed in the following sections.

Contributors to Pollution of Runoff

Stormwater and dry weather runoff can carry pollutants that impair surface water beneficial uses. Toxic substances from pesticides, petroleum products, metals, and industrial wastes may cause toxicity, and may bioaccumulate in organisms to levels that may be harmful to human health. Nutrients from fertilizer use, firefighting chemicals, decaying plants, confined animal facilities, pets, and wildlife may cause excessive algal blooms. These blooms may lead to problems with odor, color and increased turbidity, and may depress the dissolved oxygen content harming aquatic life. Nutrients can cause overgrowth of algae resulting in low dissolved oxygen levels (Regional Board 2013).

Within the Whitewater River Watershed, a number of pollutants are causing impairment of the CVSC including bacteria, pesticides, PCBs and ammonia. As described in the Whitewater River MS4 Permit, urban runoff may contain pathogens, sediment, trash, fertilizers (i.e. nutrients), pesticides (DDT, chlordane, diazinon, chlorpyrifos), heavy metals (cadmium, chromium, copper, lead, zinc), and petroleum products (oil, grease, petroleum hydrocarbons, polycyclic aromatic hydrocarbons). The more developed an area is, the greater potential for urban runoff to impact receiving waters. Urban development reduces pervious ground cover that would normally absorb rainwater and remove pollutants. Development also causes new pollution sources including vehicle emissions, vehicle maintenance wastes, municipal sewage, pesticides, household hazardous waste, pet wastes, trash, etc., which may either be washed into or directly dumped into the MS4.

According to the Whitewater River MS4 Permit, the "quality of discharges from the MS4 varies considerably and is affected by, among other things, past and present land use activities, basin hydrology, geography and geology, season, the frequency and duration of storm events, and the presence of past or present illegal and allowed disposal practices . . ." Certain activities contributing to pollution in runoff that are outside the control of the Permittees include: "the operation of internal combustion engines, atmospheric deposition, brake pad and tire wear, bacteria from wildlife (including feral dogs and cats) or from bacterial

resuscitation or reactivation from treated waters or growth of bacteria in the environment (such as in sediments, surface water, or other substrate), and leaching of naturally occurring nutrients and minerals from local soils, residues from lawful application of pesticides, nutrient runoff from agricultural activities, and leaching of naturally occurring minerals from local geology."

Those pollutants causing impairment of beneficial uses in the CVSC are listed on the 303(d) list as source unknown. Yet due to the development of the bacterial indicator TMDL for the CVSC, bacteria sources have been further identified and discussed. Sources of indicator bacteria include excretion from humans, mammals, amphibians, or birds. Indicator bacteria can be detected with higher probability in areas where pet droppings and bird droppings are more frequent. Bacterial indicators may be considered a priority water quality problem for the Whitewater River region depending on their concentrations, their frequent and dispersed detections, and their potential to adversely affect beneficial uses. The TMDL for bacterial indicators identifies point sources in the watershed, including CalTrans, VSD WWTP, City of Coachella WWTP, and Mid-Coachella Valley WRP (WRP-4), as well as non-point sources including agricultural runoff, federal and tribal lands, and septic systems.

Stormwater Quality Permits and TMDLs

To maintain and improve stormwater quality and protect the beneficial uses of surface water bodies in a watershed, the Regional Board issues NPDES permits for stormwater discharges associated with construction activity, industrial activity, and municipalities. Additionally, the Regional Board requires development of TMDLs for pollutants listed on the State's 303(d) list of impaired water bodies. The NPDES permits and TMDLs applicable to the Whitewater River Watershed are described below.

Construction General Permit

Construction projects that disturb one or more acres of soil, or whose projects disturb less than one acre but are part of a larger common development that in total disturbs one or more acres are required to obtain coverage under the NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ; NPDES No. CAS000002; amended by 2010-0014-DWQ and 2012-0006-DWQ). Compliance with the Construction General Permit requires the development of a Storm Water Pollution Prevention Plan (SWPPP), which describes the type and location of BMPs that will be implemented to prevent pollutants from contacting stormwater and moving offsite into receiving waters. Examples of construction BMPs include erosion control, waste management, and post-construction BMPs. Projects evaluated and prioritized by this IRWM/SWR Plan disturbing more than one acre of soil will be required to comply with the Construction General Permit requirements.

Local land use authority has the option to require a Whitewater River Region Water Quality Management Plan (WQMP) on any project. The 2014 Whitewater River WQMP Guidance Document was developed by Riverside County to assist project proponents in complying with requirements to address post-construction urban runoff from new development and redevelopment projects under the jurisdiction of the local land use authority. The 2014 Whitewater River WQMP Guidance document provides guidelines for post-construction BMPs and regional and sub-regional treatment control and LID/site design BMPs. RCFCWCD developed the Riverside County Whitewater River Region Stormwater Quality Best Management Practice Design Handbook for Low Impact Development (2014) to provide selection and design guidance for stormwater BMPs for priority development projects within the Whitewater River region while meeting the goals of LID.

Industrial General Stormwater Permit

Stormwater associated with industrial activity that discharges either directly to surface waters or indirectly through MS4s is regulated by the NPDES General Permit for Storm Water Discharges Associated with Industrial Activities (Order 2014-0057-DWQ; Order NPDES No. CAS000001). The SWRCB adopted the latest version of the General Permit for Storm Water Discharges Associated with Industrial Activities in 2014. This permit became effective in 2015 and regulates industrial facility operators that discharge stormwater. Industrial facilities covered by the permit include manufacturing, refining, processing, mining, hazardous waste storage and treatment, landfills, recycling facilities, steam electric power plants, transportation facilities, and wastewater treatment.

The permit requires all dischargers covered by the permit to develop and implement a SWPPP. Additionally, the permit requires operators to implement a minimum set of BMPs, in combination with any advanced BMPs necessary to reduce or prevent pollutants in industrial storm water discharges. Minimum BMPs include good housekeeping, preventative maintenance, spill and leak prevention response, material handling and waste management, erosion and sediment controls, employee training programs, and quality assurance and record keeping. Stormwater sampling and analysis is also conducted as part of the permit compliance.

Many manufacturing and industrial operations in the Region are subject to the requirements of the General Industrial Permit. Projects included in this IRWM/SWR Plan that involve industrial activities will be required to comply with the Industrial General Permit where applicable.

Municipal Separate Storm Sewer System Permit

The RCFCWCD and the County of Riverside are considered Principal Permittees for the 2013 Whitewater River MS4 Permit. Other Permittees are considered Co-permittees and they include CVWD and the cities of Banning, Cathedral City, Coachella, Desert Hot Springs, Indian Wells, Indio, La Quinta, Palm Desert, Palm Springs, and Rancho Mirage. The Cities of Banning and Desert Hot Springs do not share an interconnected MS4 with the remainder of the Co-permittees but are included in the permit to facilitate coordination with the regional programs. Discharges of stormwater runoff from lands owned by Caltrans are currently regulated under a separate NPDES permit (Order No. 99-06-DWQ: NPDES No. CAS 000003) issued by the SWRCB.

The 2013 Whitewater River MS4 Permit recognizes that, as of the 2010 water quality assessments, only one of the water bodies in the Region is considered impaired under the Clean Water Act and included on the 303(d) list for impaired waters. As such, the permit requires that preventative measures be undertaken to maintain existing receiving water quality within the permit region.

The objectives of the Whitewater River MS4 Permit include:

a) Renew Board Order No. R7-2008-0001 NPDES No. CAS617002, which regulates urban runoff within the Whitewater River Watershed;

b) Regulate the discharge of potential pollutants in urban runoff that discharge to surface waters in the Whitewater River Region.

c) Implement regulatory requirements prescribed in the Water Quality Control Plan for the Colorado River Basin Region of California (Basin Plan), and requirements of Section 402(p) of the CWA and Title 40 Code of Federal Regulations (40 CFR) Part 122; and

d) Require implementation of preventative measures to assure maintenance of existing receiving water quality within the Whitewater River region.

The Whitewater Region Stormwater Management Plan (SWMP) describes activities and programs implemented by all Permittees to manage urban runoff to comply with the requirements of the MS4 permit for the Whitewater River Watershed. The SWMP was last updated in 2014 (revised in 2015) as part of the Whitewater River MS4 Permit. The Permittees established the NPDES Desert Task Force Advisory Committee (Desert Task Force), which includes representatives for each of the Permittees, to facilitate coordination of program development and implementation policy and funding issues. The Desert Task Force directs the maintenance and update of the SWMP and coordinates the implementation of the overall urban runoff program, as described in the Report of Waste Discharge.

Whitewater River MS4 Permittees, in conjunction with the MS4 Permittees of the other major watersheds within Riverside County (Santa Ana River Region and Santa Margarita River Region), created a Consolidated Monitoring Program (CMP) to coordinate monitoring programs across the regions. The CMP is reviewed and updated annually based on program findings and changes in program needs, including TMDL development and implementation. The original CMP was drafted in 1994 as part of the applications for MS4 permit renewal. The CMP has since been updated multiple times to meet the monitoring program objectives and requirements of the revised MS4 permits for the three participating regions. The most recent update of the CMP in 2014 reflects the monitoring program objectives and requirements of a fourth round of MS4 permits issued by the San Diego (2010), Santa Ana (2010), and Colorado Regional Boards (2013).

The Whitewater River Monitoring Program portion of the CMP is implemented by RCFCWCD, who, with the assistance of CVWD, conducts all the Whitewater River receiving water and Illicit Connection/Illegal Discharge MS4 outfall monitoring required under the MS4 permit. To accomplish the monitoring program objectives specific to the Whitewater River Watershed, the program has incorporated: data management, source identification, storm drain characterization, and water quality monitoring. The Permittees continue to evaluate the effectiveness of their program elements to identify revisions to the program that will subsequently be reflected in an updated SWMP.

For the 2013 MS4 Permit term, the major objectives for the Whitewater River Region Monitoring Program included:

- Develop and support and effective MS4 management program.
- Collect monitoring data from designated MS4 outfall stations in order to characterize pollutants associated with urban runoff in the region;
- Determine the impact of urban runoff on the beneficial uses of regional receiving waters;
- Collect monitoring data from the only perennially flowing receiving water in the region (i.e., the lower 17-mile reach of CVSC) during wet and dry weather conditions to evaluate the health of the CVSC; and
- Analyze and interpret the collected data to identify trends, if any, both to prevent impairments through the implementation of preventative BMPs and to track improvements based on the MS4 management program.

Those pollutants determined to be potential causes of impairment of receiving waters in the Whitewater River including metals, bacterial indicators, nutrients, and others are listed as “Constituents of Concern” in the SWMP. These analytes are analyzed under the monitoring program during wet and dry weather at the receiving water monitoring station, and during wet weather at the outfall monitoring stations.

Many of the analytes of concern have not been detected in the water quality samples collected for the CMP. Of the analytes detected in the water quality samples, there have not been persistent exceedances of Basin Plan Objectives (BPOs). The majority of constituents were either not detected or were detected below the reporting limit, including MBAS, hydrocarbons, and several metals. The only analytes that have exceeded the BPOs are E. coli, and pH. While E. coli did not exceed BPOs during the two dry weather events, it did exceed BPOs in 79% of samples from the Ramsey Street Storm Drain and 60% of samples from the Portola Avenue Storm Drain during wet weather events. Dissolved oxygen did not meet BPOs during either wet or dry weather events.

The 2015-2016 Whitewater River Region Monitoring Annual Report included identification and analysis of long-term trends in stormwater or receiving water quality and analyze long term trends for signs of chronic water quality concerns. The following is a brief summary of parameters for each sampling site that exceeded Basin Plan Water Quality Objectives (WQOs) during the 2015-2016 Annual Report (RCFCWCD 2017).

- CVSC at the Avenue 52 Bridge has trended towards improving water quality for copper and zinc, while ammonia, nitrate, nitrogen, selenium, specific conductance, and TDS trended negatively.
- The Ramsey Street Storm Drain showed significant trends toward improving water quality for total barium, total lead, and total zinc, while orthophosphate phosphorus, dissolved oxygen (DO), specific conductance, and temperature trended negatively.
- Portola Street Storm Drain showed a significant trend toward a decline in water quality for DO, temperature, and turbidity.
- While the nitrogen-related nutrients met water quality objectives, dry weather trends indicated increasing concentrations of nitrogen-related nutrients at the receiving water station.
- This IRWM/SWR Plan supports compliance with the Whitewater River MS4 Permit and its implementation through the measures described in the SWMP. Projects submitted to the IRWM/SWR Plan are prioritized based on their ability to improve water quality in the watershed and will support the implementation of the MS4 permit.

Total Maximum Daily Loads and Implementation Plan

Waterbodies identified and placed on the 303(d) list of impaired waters are required to develop a TMDL to address each pollutant causing impairment. A TMDL defines how much of a pollutant a waterbody can tolerate and still meet water quality standards. The pollutants causing impairment of waterbodies in the Whitewater River Watershed are discussed in *Section 2.5.3 Surface Water Quality* and listed **Table 2-22** with the expected TMDL completion dates. Only one TMDL has been developed to date for pathogens (bacterial indicators), as discussed further below.

Table 2-22: Expected TMDL Completion Dates

Water Body		Pollutant	Expected TMDL Completion Date	Source
CVSC	2-mile area of the CVSC from Lincoln Street to the Salton Sea	DDT	2021	Unknown
		Dieldrin	2021	Unknown
		PCBs	2021	Unknown
		Toxaphene	2019	Unknown
	17-mile area of the CVSC from Dillon to the Salton Sea	Pathogens (Bacterial Indicators)	USEPA approved the TMDL in 2010	Unknown
	All	Nitrogen_ammonia (Total Ammonia)	2025	Unknown
	All	Toxicity	2025	Unknown

On May 16, 2007, a TMDL was adopted by the Regional Board for bacterial indicators in the CVSC. On June 17, 2010, the Regional Board adopted a revision to the Basin Plan Amendment language (Resolution No. R7-2010-0028) to reflect the results of an early implementation monitoring program which indicated that bacterial indicators entering the CVSC in flows from subsurface drain collectors serving agricultural lands have a minimal effect on the bacterial indicator impairment in the CVSC (CA State Web Portal 2011). EPA approved the bacterial indicator TMDL for CVSC on April 27, 2012. The Basin Plan Amendment names bacteria as impacting the Water Contact Recreation (REC I) and Water Non-Contact Recreation (REC II) beneficial uses of the CVSC. The MS4 operated by the City of Coachella was identified as a potential source of indicator bacteria (E. Coli), as well as other point sources operating in the impaired section of the CVSC including CalTrans, VSD's WWTP, City of Coachella's WWTP, and the Mid-Coachella Valley WRP (WRP-4). Non-point and background indicator bacteria sources named on the TMDL in the impaired area include agricultural runoff, federal lands, tribal lands, and septic systems (Regional Board 2013).

Table 2-23 summarizes the bacteria indicator water quality objectives for all surface waters in the Colorado River Basin Region, excluding the Colorado River.

Table 2-23: Bacterial Indicator Water Quality Objectives

Parameter	30-Day Geometric[1] Mean	Maximum Instantaneous
E. coli	126 MPN[2]/100ml	400 MPN/100ml
Fecal coliform	200 MPN/100ml	N/A[3]
Enterococci	33 MPN/100ml	100 MPN/100ml

1. Based on a minimum of no less than 5 samples equally spaced over a 30-day period.
2. Most probable number.
3. No more than 10 % of total samples during any 30-day period exceed 400 MPN per 100 ml

According to the Basin Plan Amendment, the wasteload allocation (WLA) for the City of Coachella is a log mean (geometric mean) of the most probable number (MPN) of less than or equal to 126/100 milliliters (ml) (based on a minimum of not less than five samples during a 30-day period), or 400 MPN/100 ml for a single sample.

An initial TMDL Implementation Plan for Bacterial Indicators for the CVSC was developed in 2007. The TMDL Implementation Plan proposed a two-phase approach with Phase 1 focusing on monitoring and addressing pathogens from wastewater treatment plants, and from urban, agricultural and stormwater runoff. If water quality objectives are not achieved by the end of Phase 1, additional actions will be implemented in Phase 2. The SWMP summarizes the measures that the City of Coachella is currently implementing to comply with Phase 1 implementation of the TMDL and discusses possible future actions.

On January 8, 2013, the City submitted a Draft Quality Assurance Project Plan (QAPP) describing a two-to-three-year bacterial monitoring program of three city outfalls to the CVSC. Regional Board staff reviewed the QAPP, provided comments, and suggested recommendations to the City on January 16, 2013. The City revised the draft QAPP and resubmitted a draft QAPP on February 13, 2013, which ultimately was approved by the Regional Water Board Executive Officer.

The first phase of the TMDL Implementation Plan was initiated on October 8, 2012 and focused on monitoring to assess individual contributions of bacteria to CVSC from each identified source. To address the water quality issues at the CVSC, the City of Coachella installed and maintains three dry weather diversions for its MS4 facilities that previously discharged into the CVSC, including a diversion upstream of the CVSC receiving water station. The City of Coachella performed monitoring at its three outfalls and the CVSC receiving water May 2013 through June 2015 in accordance with its QAPP. The submittal of the City of Coachella's final report by January 31, 2016 concluded the City of Coachella's compliance requirements under the interim water quality-based effluent limitation and Phase I of the TMDL Implementation Plan. The Regional Board will assess the data from submitted as part of Phase 1 and the City of Coachella will submit a final report describing final monitoring, milestone attainment and any needs to move into Phase 2 implementation or revise the TMDL (RCFCWCD 2017).

This IRWM/SWR Plan is consistent with and assists in compliance with the TMDL implementation plan. Meeting bacterial indicator water quality is prioritized in the IRWM/SWR Plan. Many projects submitted to the IRWM/SWR Plan contain BMPs that can reduce bacteria levels in the CVSC and help meet the objectives of the TMDL Implementation Plan.

2.5.6 Stormwater Quality Concerns and Priority Pollutants

*This section complies with the **Watershed Identification** requirements for the SWRP by describing water quality priorities within the watershed and the general quality of surface water resources within the watershed.*

The CVSC TMDL for indicator bacteria is considered to be the primary stormwater quality issue of concern within the Region; however, the TMDL Implementation Plan recognizes that flows other than stormwater flows may contribute to the presence of bacteria within the CVSC (Regional Board 2007). Additional stormwater quality priorities include those identified as causing impairment of the CVSC beneficial uses and listed on the State's 303(d) list of impaired water bodies, including ammonia, PCBs, and pesticides (i.e., DDT, dieldrin, and toxaphene).

This SWRP addresses the stormwater quality issues identified in the watershed, including those water body-pollutant combinations with a TMDL, listed on the State's CWA Section 303(d) list, and other potential impairments by containing and prioritizing projects that improve stormwater quality and address compliance requirements including the bacteria TMDL and Whitewater River MS4 Permit.

2.5.7 Drinking Water Quality

The five water purveyors that make up the CVRWMG annually report the quality of water that they serve. The majority of domestic water served by the CVRWMG partners is obtained locally from wells drilled into the Coachella Valley's vast groundwater basin; although DWA also obtains some supply from surface water sources. Water quality testing is performed in State-certified laboratories. Water quality staff monitor for over 100 regulated and unregulated chemicals (both covered and not covered in the Clean Water Act).

While the CVRWMG partners' domestic water supplies meet current drinking water requirements, some private wells in the eastern Coachella Valley contain low levels of arsenic. In the eastern Coachella Valley, CVWD treats water for arsenic before delivery to customers at five of their municipal water supply wells. Some people who drink water containing arsenic in excess of the MCL over many years may experience skin damage or circulatory problems and may have an increased risk of cancer. The CVRWMG agencies also monitor nitrate levels in groundwater closely because they can have health effects and preventive measures are taken seriously. Nitrate in drinking water that exceeds 45 mg/L poses major health risks to infants younger than three months. Methemoglobinemia, also known as blue baby syndrome, is caused by consumption of water that is highly contaminated with nitrate. Other contaminants that are monitored include:

- Inorganic contaminants-salts or metals from urban stormwater runoff industrial or domestic wastewater discharges, oil and gas production, mining or farming.
- Pesticide and herbicides-primarily from agriculture but also for residential landscaping, transported by urban stormwater runoff.
- Organic chemical contaminants-synthetic and volatile organic chemicals, by-products of industrial processes and petroleum production, can come from gas stations, urban stormwater runoff and septic systems.
- Radioactive contaminants-naturally occurring and can be detected near mining activities and petroleum production.

Constituents found in drinking water primarily come from natural sources such as erosion or leaching of natural deposits. Other sources of constituents include chlorination process used to disinfect water, corrosion of household plumbing, leaching of fertilizers and wastes, and municipal and industrial discharges (CVWD 2012b).

The CVRWMG members have conducted source water assessments that provide information about the vulnerability of drinking water wells to contamination. Groundwater from some wells are considered vulnerable to urban and agricultural activities, because of the Region's permeable aquifer, and because the Region's water purveyors cannot control land use decisions. Drinking water supplied by the CVRWMG purveyors to Coachella Valley communities, to date, have complied with State and federal drinking water quality standards.

2.6 Social and Cultural Make-up

This section describes the social and cultural make-up of the regional community.

The Coachella Valley population includes a wide-ranging, diverse group of citizens.

As of 2015, the Coachella Valley year-round population was approximately 444,508 (U.S. Census 2016). Of that, 367,433 people, or 83% of the population resides within incorporated cities and approximately 17% of the population inhabits unincorporated areas of the County, including Indian lands and mobile park homes that are largely located outside of city jurisdictions (CVEP 2012; City of Coachella 2009; U.S. Census 2016). Population growth in Coachella Valley increased by 49.5% from 2000-2015, which is faster than the U.S. (14%) and California (15%). Though population increase slowed in recent years due to the economic recession, the population growth is beginning to increase again with a 1.2% increase in 2016 and a 1.7% increase in 2017 (CVEP 2017). The Coachella Valley's proximity to Los Angeles, San Diego and Riverside counties, in conjunction with its supply of affordable homes, has attracted more permanent residents to the Region. It is estimated that the total population of the nine Coachella Valley cities will grow to approximately 400,000 in 2020 (CVEP 2017).

Compared with the State as a whole, the Coachella Valley economy has a larger proportion of jobs in agriculture, construction, retail trade, and services, and a comparatively small proportion of jobs in manufacturing, wholesale trade, and government. The Coachella Valley is one of the fastest growing regions in California because of its vibrant, entrepreneurial business climate and its international acclaim as a tourism destination. Attractions include over 220 golf courses, art and children's museums, Indian gaming casinos, concerts and theater, the Palm Springs Aerial Tramway, the BNP Paribas Open Tennis Masters Tournament, the CareerBuilder Challenge PGA golf tournament, the ANA Inspiration LPGA golf tournament, the Living Desert Zoo and Botanical Gardens, the Palm Springs Air Museum, Coachella Music and Arts Festival, and the Stagecoach Festival (CVEP 2013).

Higher education institutions have been moving to the Region and providing opportunities for local high school students to further their education. The new California State University, San Bernardino-Palm Desert campus and the University of California, Riverside's Palm Desert Graduate Center campus have attracted businesses to the Coachella Valley bringing in educators and administrators. College of the Desert's $350 million expansion has provided lower division college courses as well as career, vocational education and technical training. Other institutions of higher education are Chapman University, University of Phoenix, and Kaplan College.

2.6.1 Social Make-up

The population in the Coachella Valley is slightly older than in Riverside County and California. In 2010, the median age in the Coachella Valley was 36.1 years compared to 33.7 in Riverside County, and 35.2 in California (CVRWMG and Planning Partners 2010). However, in 2010, the Coachella Valley's largest population groups were young people 10-19 (13.9%, 59,572) and children 0-9 (13.7%, 58,647) (CVEP 2012). They were followed by the 45-54 age group (12.5%, 53,596) and the 55-64 age group (11.7%, 49,906). There were 82,695 adults ages 65 and up in the Coachella Valley in 2010 or 19.3% of the population. This percentage is above the 10.4% for the Inland Empire as a whole. The 20-54 age group represented 41.3% of the Coachella Valley's population in 2010, down from 42.6% in 2000 (compared to 47.7% for the full Inland Empire). In 2015, population of Coachella Valley is estimated to increase to 535,000 (PPIC 2013).

2.6.2 Cultural Make-up and Diversity

The Coachella Valley has a well-established, yet growing, Latino population (Branin 2006). Latinos have always had a strong presence in the Palm Springs central and eastern sections; the Cities of Indio and Coachella have also contained a high Latino population for decades. Most of the Coachella Valley's Latinos are Mexican from a multi-generational community. Central American immigrants can be mostly found in Indio and Cathedral City, while Cuban Americans, Puerto Ricans, and South Americans live in Palm Springs and Rancho Mirage areas. In 2012, the Census found the share of the population in Coachella Valley cities that was Latino was 51.4% in the Coachella Valley and 46.5% for the entire County of Riverside (CVEP 2012). 41.8% of the population in urban Coachella Valley was White compared to 39.7% for all of Riverside County. There were smaller shares of Asians (2.6 %), African Americans (2.1%) and Native Americans (0.4%). In 2015, the Latino population in urban Coachella Valley is anticipated to increase to 53.2%, while the White population is anticipated to decrease to 38.9% (PPIC 2013). In the past, most Latinos found steady work through Coachella Valley's large agricultural trade, but presently, other employment opportunities have arisen with the expansion of home and business development within the Region.

2.6.3 Economic Profile

Between 2000 and 2007, the Coachella Valley economy grew at a faster annual rate than the state of California; 4.1% compared to 0.8% across California (CVWD et al. 2013). The general economic trend for the region appears to be positive, with mostly low unemployment rates throughout the area. Although employment growth has been lower than anticipated in recent years, income levels have generally increased, and the housing market is poised for growth (CVEP 2017).

From 2000-2011, the Coachella Valley's employment increased overall from 109,553 to 122,581, up 13,028 jobs or 11.9% (compared to 13.3% for the Inland Empire). From 2006-2008, the area saw substantial employment increases. However, like the rest of the United States and the state of California, the region experienced large employment losses in 2009-2011. Since the Great Recession, employment gains have ranged from 1.8% (2013) to 4.3% (2015) annually, but this has not been as strong as expected. Coachella Valley's economic base is largely driven by five sectors: tourism, retail sales, health care, agriculture, and housing. The Coachella Valley's largest industry – hospitality and tourism – has long contributed to local job growth and the attraction of billions of dollars in tourism-serving investment, including hotels, golf courses, shopping, dining and nightlife establishments, casinos, and second-home developments. Various indicators confirm the recovery of the tourism industry. Hotel room revenue was up 10.8% through November 2011 after falling the prior four years (CVEP 2012). Passenger traffic at Palm Springs International Airport accelerated in 2012 - volume was up 17.6% through July 2012. Car rentals related to the airport rose 15.0% through July 2012. Retail sales, with its substantial source deriving from winter residents, tourists and convention goers, increased by 3.9% in 2010, 9.9% in 2011, and 6.4 % in first quarter of 2012. From 2000-2011, the Coachella Valley's retail trade added 5,512 jobs due to increased population and tourism. Since 2011, the rise in Airbnb rentals has brought particular attention to the potential economic benefits of the retail trade sector (CVEP 2017). The number of Airbnb rentals in the Coachella Valley significantly increased in 2014 and have increased at a fast rate ever since. From December 2010 to December 2016, the number of units registered as vacation rentals grew from 1,075 to 1,967 units. Airbnb revenues are relatively insignificant compared to the revenue of hotels. Meanwhile, Airbnb is not considered a competitor with top star hotels; overall hotel revenue has increased in the presence of more Airbnb rentals.

The agriculture sector is another one of the other traditional lynchpins of the Coachella Valley economy. Agricultural production has increased from $324.7 million in 2000 to $526.3 million in 2011, although jobs have declined by 1,288 during this time period (CVEP 2012). With agricultural production down minimally from 2010, agricultural employment has remained essentially flat, up 66 jobs or 0.6%. According to CVWD, the average gross value per acre of cropland was $7,986 for a total value of over $491 million in 2007 (CVWD 2009). Meanwhile, the importance and impact of the agricultural sector in the Coachella Valley has decreased over time.

The health care industry has been strong, even during the recession; jobs in Coachella Valley increased from 10,795 in 2007 to 12,120 in 2011, up 12.3% (CVEP 2012). Since 2012, the industry has continued to see job gains (CVEP 2017). This is most likely due to increased demand to health services in the face of population growth, as well as the nearly 8,000 new positions created as a result of the Affordable Care Act. In terms of other industries, the region has a relatively small share of its employment in manufacturing, finance, and professional services as compared to the national share. Construction jobs, which were once one of the larger employment sectors in the Coachella Valley, have declined. For the construction industry, of the more than 10,000 jobs that were lost in the area since 2007, only about 3,000 jobs have been recovered (CVEP 2017).

In 2012, Coachella Valley continues to see a mixed picture in the housing sector. While the existing home market has performed modestly well, the Coachella Valley continues to have problems with new home construction and sales, however, in the long-term, housing units are likely to increase. For example, in the City of Coachella, housing units are anticipated to increase to 28,132 in 2035 from 6,624 in 2005 (CWA 2011).

The economic profile of Coachella Valley varies throughout the Region. While some communities within the Region have annual median household income (MHI) similar to Statewide values, the Coachella Valley has several disadvantaged communities (DACs). Please refer to *Chapter 4 Disadvantaged Communities* for detailed information regarding the economic composition and geographic location of DACs within the Coachella Valley. In 2010, the share of families living in poverty in the Coachella Valley ($22,314 for a family of four) averaged 15.7%, up from 13.8% in 2009 (CVEP 2012). Poverty levels varied from 24.5% in the City of Coachella to 2.3% in the City of Indian Wells. In this period, the share of the Coachella Valley's children in poverty averaged 35.8%, up from 29.2%; it ranged from 48.9% in the City of Indio to 5.1% in the City of Indian Wells. The estimated 2016 annual median household income for all the cities in Coachella Valley are as follows (U.S. Census 2016):

- $34,059 in the City of Desert Hot Springs,
- $46,059 in the City of Palm Springs,
- $36,124 in the City of Coachella,
- $96,961 in the City of Indian Wells,
- $49,551 in the City of Indio,
- $71,338 in the City of La Quinta,
- $53,701 in the City of Palm Desert,
- $66,083 in the City of Rancho Mirage,
- and $41,696 in the City of Cathedral City

2.6.4 Disadvantaged Communities

As described above, economically disadvantaged communities are defined as those communities earning 80% or less than the statewide MHI. U.S. Census data has been used to determine location of DACs and their populations in the Region, but there remain disputes over the accuracy of such data in the Coachella Valley. Planning Partners and local non-profits who work closely with DACs, as well as members of DACs themselves, indicated during the DAC Outreach Program (see *Chapter 4 Disadvantaged Communities* and

Volume II) that existing DAC maps, based on U.S. Census data, are not accurate. It is unlikely that U.S. Census data accurately characterizes the rural portions of eastern Coachella Valley, due to lack of access, lack of knowledge of the existence of some communities, and a disinclination by residents to participate in government-administered surveys. Across the Coachella Valley, DAC population density tends to be low, reflecting the rural nature of many of the DACs in the Region. For some residents, new development near existing DACs extends municipal water, sewer, and other services to their communities, which also increases cost of living through service charges. The increased cost of living can drive low-income residents to seek more affordable housing and can lead to a push of low-income residents out of urbanized areas and into more rural communities. As described in *Chapter 4 Disadvantaged Communities*, many of the DACs in the Coachella Valley are populated by immigrants or first-generation families, and language barriers are common. Those DAC residents that are not fluent in English generally speak Spanish. Detailed information on DACs can be found in *Chapter 4 Disadvantaged Communities*, and in **Volume II**.

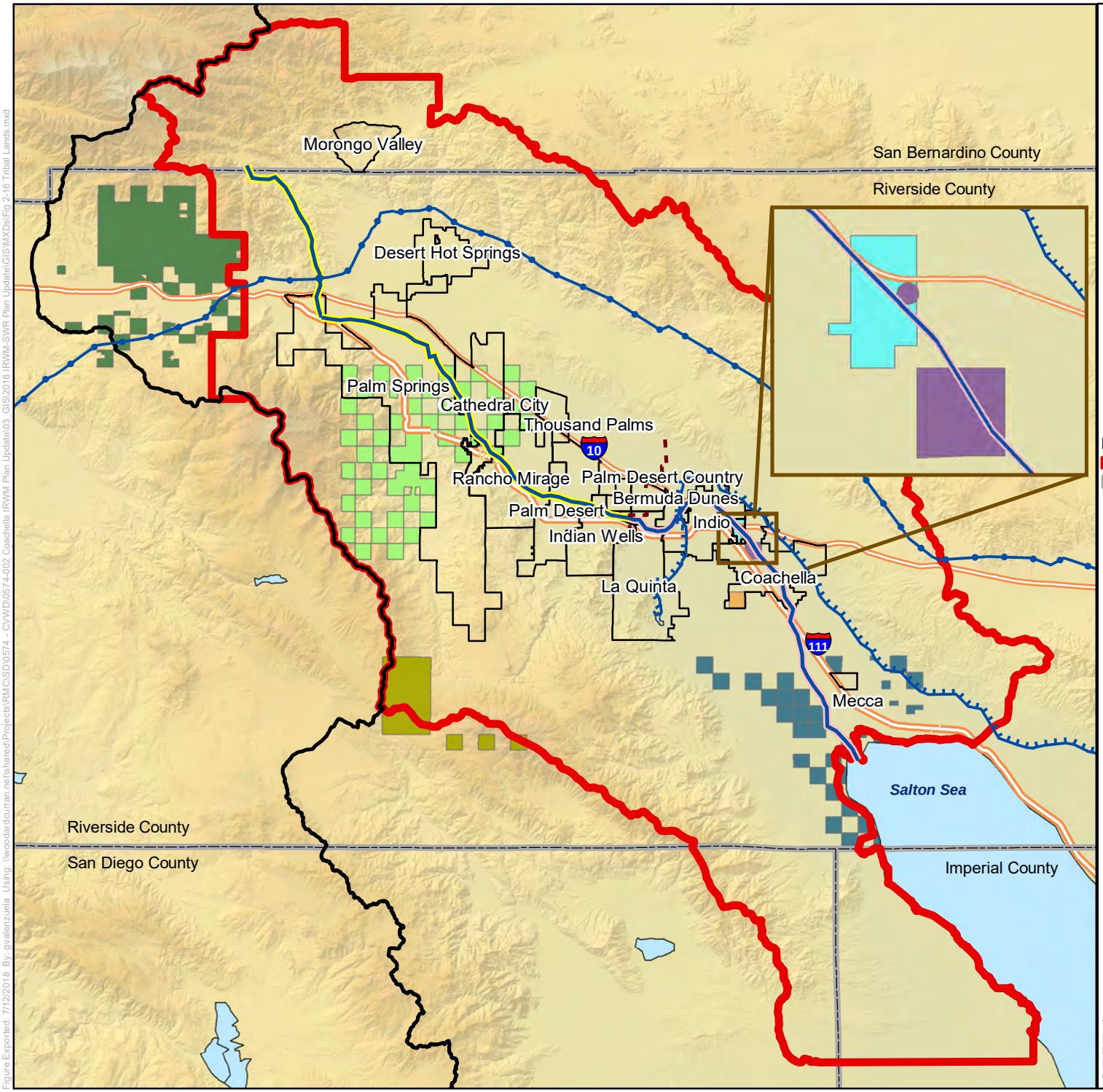
2.6.5 Tribes

Most lands within the Coachella Valley are either private lands, public lands administered by the U.S. Bureau of Land Management, or Native American tribal lands. Major Native American reservation lands include (see **Figure 2-16**):

- Torres Martinez Desert Cahuilla Indian Reservation, Cahuilla*
- Cabazon Band of Mission Indian Reservation, Indio*
- Augustine Band of Cahuilla Indian Reservation, Coachella*
- Agua Caliente Band of Cahuilla Indian Reservation, Palm Springs*
- Twenty-Nine Palms Band of Mission Indian Reservation, Indio and Coachella*
- Santa Rosa Tribal Lands, in the Mountains of Palm Desert
- Morongo Tribal Lands, which are located just west of the IRWM Region

Five of these Tribes have expressed interest in participating in the Coachella Valley IRWM Program and development of the IRWM/SWR Plan Update and are indicated by an asterisk (*). Recognizing the importance of the Tribes in the Region, the CVRWMG has made a concerted effort to increase tribal participation in the IRWM Program, and detailed tribal history, water management, issues and needs in *Chapter 5 Tribal Water Resources*. Tribal outreach efforts are described further in *Chapter 7 Stakeholder Involvement*.

The CVRWMG has collaborated, and intends to continue collaborating with, the local tribes on long-term water management planning to ensure that the water supply within the Coachella Valley is adequate for all users. *Chapter 10 Agency Coordination, Section 10.2.1 Water Supply Planning and Groundwater Management,* describes how planned build-out on the tribal reservations were considered in the Coachella Valley WMP (CVWD 2012) in order to have a complete understanding of current and future impacts on the groundwater basin.



Tribal Lands

Figure 2-16

Legend

- Division between Western and Eastern Coachella Valley
- Colorado River Aqueduct
- Coachella and All American Canals
- Whitewater River Stormwater Channel
- Coachella Valley Stormwater Channel
- Highways
- Water Bodies
- Colorado River Funding Area
- IRWM / SWR Planning Area
- County Lines
- City Boundaries

Tribal Lands

- Agua Caliente Tribal Lands
- Augustine Tribal Lands
- Cabazon Tribal Lands
- Morongo Tribal Lands
- Santa Rosa Tribal Lands
- Torres-Martinez Desert Cahuila Indians
- Twenty-Nine Palms Band of Mission Indians

0 1.75 3.5 7 10.5 14 Miles

N

Map Created: June 2018

Third Party GIS Disclaimer: This map is for reference and graphical purposes only and should not be relied upon by third parties for any legal decisions. Any reliance upon the map or data contained herein shall be at the users' sole risk. **Data Sources: CVRWMG**

Figure Exported: 7/12/2018 By: gvalenzuela Using: \\woodardcurran.net\shared\Projects\IRM\CSD\10574 - CVWD\05574-002 Coachella IRWM Plan Update\03_GIS\2018 IRWM-SWR Plan Update\GIS\MXDs\Fig 2-16 Tribal Lands.mxd

2.7 Major Water-Related Conflicts and Objectives

This section contains a description of major water-related objectives and conflicts.

Both conflicts and agreements have occurred between the agencies prior to the establishment of the CVRWMG. Major water-related conflicts have generally revolved around groundwater recharge and pumping activities and associated assessments. MSWD was formed in 1953 as the Desert Hot Springs County Water District, a California special district. In 1963, MSWD requested to be included into the boundaries of the newly-formed State Water Contractor, Desert Water Agency, for purposes of participating in groundwater replenishment programs in the future. Since the time of MSWD's inclusion within DWA's boundaries, land owners within MSWD's boundaries have paid a SWP assessment for the capital costs of the SWP Exchange water supplies. All land owners within DWA's and CVWD's State Water Contractor boundaries pay the assessment as well. As early as 1984, MSWD, CVWD, and DWA held discussions about recharging the Mission Creek Subbasin and the facilities that would be required. In 2001, construction of a turnout from the Colorado River Aqueduct began and by 2002, construction of the spreading basins was completed. In 2001, MSWD adopted a resolution declaring its support for DWA's program to replenish the subbasin. Construction of the recharge basins was completed the following year.

CVWD and DWA executed the Mission Creek Groundwater Replenishment Agreement in April 2003, independent of MSWD, which allowed for storage of advanced deliveries from MWD. In a May 2003 White Paper, MSWD outlined its concerns with the Agreement, underscoring its dependence and interest in the subbasin. In October 2003, MSWD filed a lawsuit in the Superior Court of the State of California against DWA and CVWD seeking a writ of mandate, declaratory relief for prescriptive and appropriative water rights and declaratory and injunctive relief for a physical solution of a groundwater basin. MSWD sought adjudication of the subbasin and questioned the quality of the imported water. Both CVWD and DWA filed answers challenging the complaint. In December 2004, MSWD, DWA, and CVWD reached a court-ordered settlement agreement. The agreement stated the agencies would work jointly to manage the subbasin. The agreement included provisions regarding payment of Replenishment Assessment Charges (RAC), shared costs for basin studies and development of a Basin Management Plan for the Mission Creek and Garnet Hill Subbasins. In October 2008, final contracts needed for development of the Basin Management Plan were approved by CVWD and MSWD. DWA agreed with development of modeling studies but questioned whether the Basin Management Plan would duplicate efforts expected for the IRWM/SWR Plan. In April 2009, DWA approved a modified proposal to facilitate management plan preparation; in November 2010, DWA approved the additional efforts. This led to the development of the Mission Creek-Garnet Hill WMP in 2013. Development of the Mission Creek-Garnet Hill WMP was a joint effort by CVWD, DWA, and MSWD to manage the water resources of the subbasins to meet water demands reliably, reduce groundwater depletion, and improve water quality.

Local implementation of the Sustainable Groundwater Management Act (SGMA) has also created conflict between several CVRWMG agencies. In 2016, MSWD filed suit against DWA and CVWD so that it could achieve Groundwater Sustainability Agency status in Mission Creek, Desert Hot Springs and Indio subbasins.

In January 2005, CVWD established a RAC that covered eastern Coachella Valley groundwater pumpers, including the Cities of Coachella and Indio. The City of Indio ceased paying the charge in July 2007, challenging the benefits of the Dike 4 replenishment project to the City of Indio. One year later, after negotiations with the City of Indio failed to resolve the issues, CVWD filed suit against the City of Indio for nonpayment. In April of 2008, IWA filed a cross complaint seeking CVWD to show proof that IWA

received any special benefit from the RAC. In December 2008, CVWD and the City of Indio announced they had approved terms of an agreement to settle the nonpayment lawsuit. The terms include the following:

- CVWD and IWA will participate in an IRWM Plan,
- Future groundwater basin recharge projects financed through the RAC will continue to benefit the lower basin,
- A recharge facility will be built within the City of Indio if feasible, and
- IWA will pay CVWD all outstanding RACs.

In early 2007, CVWD filed a California Environmental Quality Act (CEQA) lawsuit against IWA regarding a development within IWA's sphere of influence. The Citrus Ranch development is located outside of the Whitewater River Subbasin and in order to move forward with the development, IWA had planned to export water from the subbasin to Citrus Ranch. CVWD did not believe IWA had researched alternative sources and addressed the overdraft impact. The lawsuit was settled in October 2008 stating among other things, that the developer of Citrus Ranch, SunCal, will pay the City of Indio approximately $5.6 million to offset the project's impact on the local groundwater supplies.

DWA and CVWD assess a replenishment assessment based on the amount of water pumped. Therefore, revenues are generated from the extraction of groundwater and not the delivery of imported water. This is a key component in understanding water management issues within the Region.

The Coachella Valley IRWM Program is a collaborative effort resulting from the aforementioned lawsuits, and contains regionally-defined issues, objectives, resource management strategies, and implementation projects that ultimately provide resolution. For further information regarding major water-related conflicts defined in the Coachella Valley, refer to *Chapter 3 Issues and Needs*. *Chapter 6 Objectives, Section 6.1.1 Determining Objectives* provides an understanding of how the CVRWMG seeks to resolve those conflicts.

In 2013, Agua Caliente Band of Cahuilla Indians sued CVWD and DWA asserting a reserved right to groundwater in the Coachella Valley. A federal district court and a three-judge panel from the Ninth Circuit affirmed that the Tribe has a reserved right to groundwater. The lawsuit is ongoing, so the court can determine the characteristics and quantity of the Tribe's right. This lawsuit may lead to a full adjudication of the groundwater basin.

2.8 Climate Change

*This section (along with sections in Chapters 3 and 6) implements the **Climate Change Standard** by describing and considering the effects of climate change on the Region.*

According to the USEPA, greenhouse gases (GHGs) are a group of gases that have the ability to absorb heat in the atmosphere. The presence of GHGs contributes to the greenhouse effect, a process that warms the planet by not allowing heat to leave Earth's atmosphere. GHGs absorb the longwave radiation emitted by the planet's surface heat and re-radiate that energy in all directions within the Earth's atmosphere, creating warm enough conditions for human habitation. Without the greenhouse effect, scientists estimate that the average temperature on Earth would be colder by approximately 30 degrees Celsius (54 degrees Fahrenheit), far too cold to sustain our current ecosystem. GHGs, therefore, play a vital role in regulating our global climate.

Increased GHG concentrations are linked to a stronger greenhouse effect with the corresponding global temperature increases and sea level rise (United States Global Change Research Program 2010). Climatic changes could potentially continue depending on a number of factors, including the amount and type of heat-trapping GHG emissions and the sensitivity of climates to those emissions. As described in the United States Global Change Research Program literature, global consequences of climate change are very broad, but on a smaller, regional scale the impacts of warming trends become much more diverse and distinctive. Climate responds to local, regional, and global factors (United States Global Change Research Program 2010). For instance, precipitation is not distributed evenly over the globe. Its average distribution is governed primarily by atmospheric circulation patterns, the availability of moisture, and surface terrain effects. The California Climate Science and Data Report (DWR 2015) explains that even within California, the impacts of climate change will vary between different zones, with each region experiencing a unique series of effects.

The inconsistencies of land surfaces, wind patterns, and moisture levels across regions have produced very distinct climatic trends that ultimately alter the quantity and quality of natural resources. These climate trends create significant challenges for California's water resources management, due to the modified hydrology that exacerbates extreme events and affects water infrastructure (DWR 2015). The following list outlines the changes already observed in California's climate and water supply (DWR 2015):

- Observed temperatures have demonstrated a warming trend in the Region, where the Sonoran Desert Western Region Climate Center (WRCC) Region's mean temperature has increased 1.2 – 2.2 °F from the 1949-2005 baseline average;
- Recent decades have shown a trend toward greater rainfall than snowfall in total precipitation volume, with years where watersheds experience more than a mean of 72% of precipitation as rain are becoming more common. This has reduced total snowpack;
- The timing of runoff in the Sacramento River System has shifted to earlier in the season, approximately starting in March rather than April. Therefore, water management systems can no longer depend on historical hydrology to predict average monthly runoff. This also reduces the ability to refill reservoirs following the wet season;
- Sea level rise at the Golden Gate in San Francisco has been recorded to be 7-inches over the last century

The following list describes possible anticipated changes in California's climate and water supply (DWR 2015):

- Temperatures are projected to continue to increase in the Sonoran Desert WRCC Region, with mean temperatures by 2060-2069 predicted to be 3.6°F – 5.4°F greater than those from 1985-1994;
- Precipitation projections indicate that warmer conditions will lead to droughts that are both longer and more frequent. For the Colorado River Hydrologic Region, where the Region is located, this would decrease the quality of local water and habitat, as well as reduce imported water supply reliability;
- There is projected to be an increase in the number of warm, wet atmospheric river events, with precipitation falling more often as rain than snow. For the Region, this will result in an increased flood risk and debris flows;
- State snowpack will continue to decrease, with models projecting a 48% – 65% loss from the 1961-1990 average by the end of the century. This represents reduced storage for late spring and early summer stream flows, thereby reducing water sources;

- Sea level rise will put additional pressure on the State's levee and water delivery systems, thus affecting Delta water deliveries, which the Region depends on;
- Runoff volumes are anticipated to greatly increase during the flood protection period, which reduces the water than can be stored for peak use during the summer months;
- Increased water demands could occur in summer months due to warmer temperatures;

According to the California Climate Science and Data Report (DWR 2015), these predicted water cycle changes could lead to serious additional stress on water supply systems. Changes in climate may have adverse effects related to the release and availability of water sources critical for California's regional needs. Every region in California faces potential flood risks since flood protection infrastructure has been designed for historical – and now outdated - conditions. The threat of flooding therefore becomes much greater in densely populated regions. The State's water and flood systems could face both the threat of too little water to meet water demand during droughts and too much water to protect life and property during floods. Overall, water infrastructure and operations must be updated to include greater flexibility in the face on climate uncertainty.

As described in *Section 2.4 Water Supplies and Demand,* it is anticipated that the Region will experience increasing population growth, thereby possibly driving up water demands. Projected water demands outpace current, sustainable water supplies in the Coachella Valley. Climate change might reduce availability of water supplies, which has the potential to damage recreational areas, and degrade the quality of local water resources and habitat (DWR 2015).

2.8.1 Legislative and Policy Context

Given the currently predicted effects of climate change on California's water resources, DWR's IRWM Grant Program Guidelines seek to ensure the Coachella Valley IRWM/SWR Plan describes and considers the effects of climate change. Below is a summary of State legislation and policy that were considered as part of this IRWM/SWR Plan.

Executive Order S-3-05

Executive Order (EO) S-3-05, signed on June 1, 2005 by Governor Arnold Schwarzenegger, is one of the key pieces of legislation that has laid the foundation for California's climate change policy. This piece of legislation recognizes California's vulnerability to the impacts of climate change, which includes its water-related natural resources. EO S-3-05 established three GHG reduction targets for California:

- By 2010, reduce GHG emissions to 2000 California levels
- By 2020, reduce GHG emissions to 1990 California levels
- By 2050, reduce GHG emissions to 80% below 1990 California levels

In addition to establishing GHG reduction targets for California, EO S-3-05 dictates the head Secretary of the California Environmental Protection Agency (CalEPA) to establish the Climate Action Team (CAT) for State agencies to coordinate oversight of efforts to meet these targets. As laid out in the EO, the CAT has submitted biannual reports to the governor and State legislature describing progress made toward reaching the targets.

There are currently 12 sub-groups within CAT, one of which is the Water-Energy group (also known as WET-CAT). WET-CAT was tasked with coordinating the study of GHG effects on California's water supply system, including the development of GHG mitigation strategies for energy consumption related to

water use. Since the adoption of the Assembly Bill 32 (AB 32) Scoping Plan (see discussion below), WET-CAT has been working on the implementation and analyses of six water-related measures identified in the Scoping Plan: Water Use Efficiency, Water Recycling, Water System Energy Efficiency, Re-use Urban Runoff, Increase Renewable Energy Production, and Public Goods Charge for Water.

Assembly Bill 32: The California Global Warming Solutions Act of 2006

Assembly Bill 32 (AB 32), the California Global Warming Solutions Act of 2006, is a piece of legislation that has laid the foundation for the State's response to climate change. In 2006, AB 32 was signed by Governor Schwarzenegger to codify the mid-term GHG reduction target established in EO S-3-05 (reduce GHG emissions to 1990 levels by 2020). AB 32 directed the California Air Resources Board (CARB) to develop discrete early actions to reduce GHGs by 2007, and to adopt regulations to implement those early action measures by January 1, 2010.

Climate Change Scoping Plan

AB 32 required CARB to prepare a Scoping Plan to identify and achieve reductions in GHG emissions in California. The approved Climate Change Scoping Plan, which was adopted by CARB in December 2008, recommends specific strategies for different business sectors, including water management, to achieve the 2020 GHG emissions limit.

Senate Bill 97

Senate Bill 97 (SB 97) directed the Governor's Office of Planning and Research (OPR) to develop amendments to the CEQA Guidelines to determine how climate change is analyzed in documents required under the CEQA. On December 31, 2009, the California Natural Resources Agency adopted amendments to the CEQA Guidelines and sent them to the California Office of Administrative Law for approval and filing with the Secretary of State (http://resources.ca.gov/ceqa/guidelines/). The CEQA Guidelines are not prescriptive; rather they encourage lead agencies to consider many factors in performing a CEQA analysis and maintain discretion with lead agencies to make their own determinations based on substantial evidence.

Managing an Uncertain Future: Climate Change Adaptation Strategies for California's Water

DWR, in collaboration with the SWRCB, other state agencies, and numerous stakeholders, has initiated a number of projects to begin climate change adaptation planning for the water sector. In October 2009, DWR released the first State-level climate change adaptation strategy for water resources in the U.S., and the first adaptation strategy for any sector in California. Entitled Managing an Uncertain Future: Climate Change Adaptation Strategies for California's Water, the report details how climate change is currently affecting the State's water supplies and sets forth ten adaptation strategies to help avoid or reduce climate change impacts to water resources (DWR 2008).

Central to these adaptation efforts will be the full implementation of IRWM/SWR Plans, MS4 permits, and municipal ordinances, which address regionally-appropriate management practices that incorporate climate change adaptation. These plans will evaluate and provide a comprehensive, economical, and sustainable water use strategy at the watershed level for California.

Executive Order S-13-08

Given the potentially serious threat of sea level rise to California's water supply and coastal resources, and the subsequent impact it would have on our state's economy, population, and natural resources, Governor Schwarzenegger issued EO S-13-08 to enhance the state's management of climate impacts from sea level rise, increased temperatures, shifting precipitation, and extreme weather events.

California Climate Adaptation Strategy

In response to the passage of EO S-13-08, the Natural Resources Agency wrote the report entitled *2009 California Climate Adaptation Strategy* (CAS), to summarize the best-known science on climate change impacts in the state, to assess vulnerability, and to outline possible solutions that can be implemented within and across the state agencies to promote resilience to climate change.

GHG Reporting Rule

While California has taken the lead in climate change policy and legislation, there have been several recent important developments at the federal level. On September 22, 2009, USEPA released its final GHG Reporting Rule (Reporting Rule). Starting in 2010, facility owners that emit 25,000 metric tons of CO_2e or more per year are required to submit an annual GHG emissions report with detailed calculations of facility GHG emissions. These activities will dovetail with the AB 32 reporting requirements in California.

2.8.2 Implications of Effects of Climate Change

Coachella Valley imports a majority of its water supply in order to satisfy regional demands. Of the five water purveyors, CVWD and DWA are both SWP contractors and retailers. Annual SWP water supplies delivered to State water contractors (either directly or via exchange agreements as occurs in the Coachella Valley) will depend on the amount of rainfall, snowpack, runoff, water storage, pumping capacity from the Delta, and water demand. Water delivery reliability will thus depend on three major factors: the availability of water at the source; the ability to convey water from the source to delivery points; and the magnitude of demand for water. The availability of the water source will be dependent on the amount of snowpack and water use in the source area. The reliability of the water source may also be contingent on the additional stressors that result from possible temperature increases.

Research on recent California climate variability indicates that the State has been warming such that by 2060-2069, mean temperatures will be 3.4°F – 4.9°F greater than those in 1985-1994 (DWR 2015). Temperature increases are expected to modify rainfall and runoff, which may in turn affect SWP operations. Precipitation patterns are unpredictable and thus warmer climate can produce wetter *and* drier conditions. Changes in the regional and seasonal distribution of precipitation could cause the most damage. For the SWP, the size of the April 1 snowpack in the Feather River Watershed and the storage in Lake Oroville are key components of the annual estimation of the SWP's delivery capabilities from April through September. By and large, increased temperatures due to climate change may reduce the snowpack at a faster rate, thereby releasing snowmelt water earlier than anticipated. This could potentially make water resource areas more susceptible to flooding in the late winter and early spring, quickly depleting water sources for the later seasons when water is crucial (summer and fall). This is illustrated in **Figure 2-17** and **Figure 2-18**, which were presented in DWR's California Climate Science and Data Report (DWR 2015). These plots use current and project conditions to demonstrate how earlier runoff dramatically affects water availability, leading to increased water shortages.

Figure 2-17: Water Availability Under Current Runoff Conditions

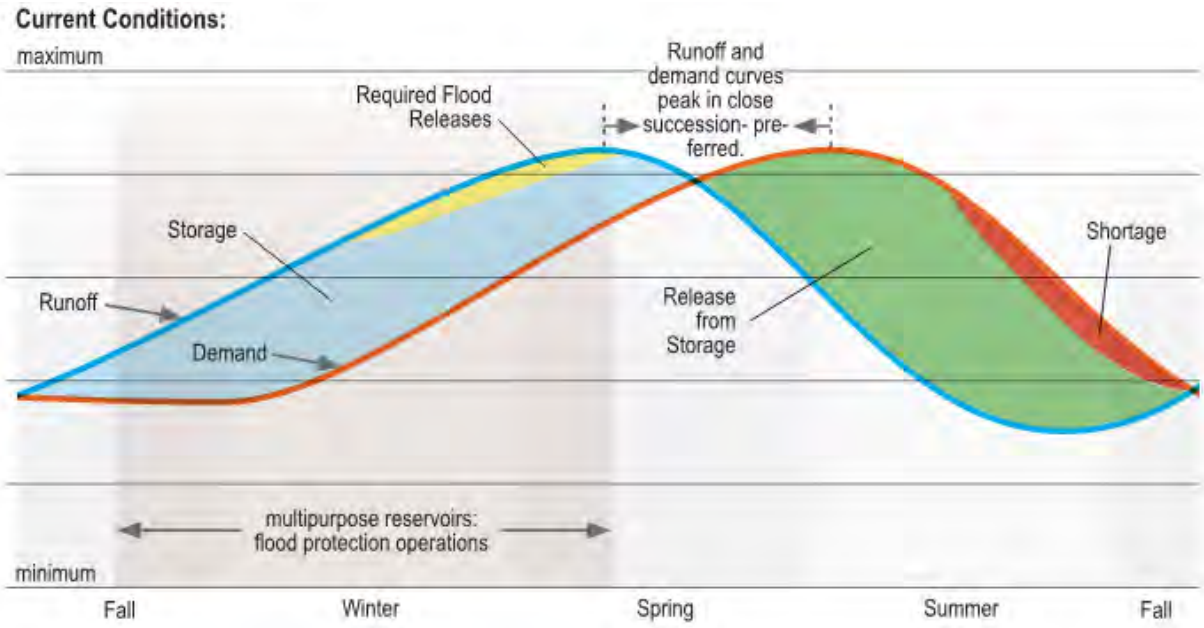
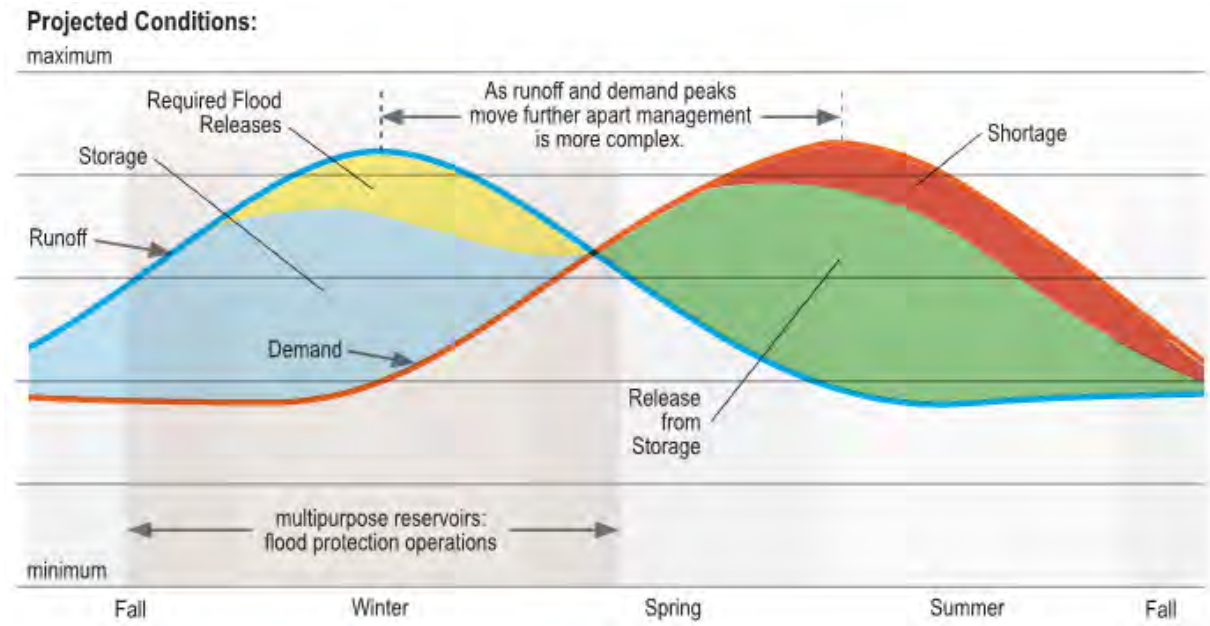


Figure 2-18: Water Availability Under Projected Runoff Conditions



Water demand close to the water source could also be expected to increase, creating a domino effect of diminishing water availability and reliability to any SWP contractors downstream, potentially leading to water shortages for the Coachella Valley. The reliability of SWP water supply is expected to be reduced for the range of future climate projections studied.

Outside of the SWP, the Coachella Canal allows CVWD to provide approximately 300,000 AFY of Colorado River water to over 1,100 non-potable customers, which mostly consist of agricultural and golf course uses. Past climate records based on changes in spring snowpacks and Colorado River flows indicate that drought is a frequent feature of the Southwest, which includes Coachella Valley, with some of the longest documented "megadroughts" on Earth (U.S. Global Change Research Program 2010). Coachella Valley's arid climate is likely to experience a drier climate. This could lead to an increase in both the duration and frequency of drought conditions (DWR 2015). To further complicate the situation, Coachella Valley's population and urban areas are continuing to grow (refer to *Section 2.4 Water Supplies and Demand* for future population projections). The number of customers is estimated to increase, and associated water use will grow, leading to greater water supply challenges.

Groundwater will be less directly and more slowly impacted by climate change, as compared to surface water sources. This is because rivers get replenished on a shorter time scale, and drought and floods are quickly reflected in surface water levels. Groundwater, on the other hand, will be affected much slower. Only after prolonged droughts or overdraft conditions will groundwater levels show declining trends. Groundwater pumping in Coachella Valley is already exceeding recharge rates and experiencing overdraft. Continued groundwater pumping at current rates could further decrease water tables and concurrently, reduced recharge associated with climate change could add to the growing problem with groundwater sustainability.

As vulnerability analysis tools become available, this description of potential climate change effects will be updated. Refer to *Chapter 8 Resource Management Strategies, Section 8.5 Adapting Resource Management Strategies to Climate Change* for information regarding climate change adaptation and mitigation.

3 Issues and Needs

This chapter outlines the major water-related issues and need of the Coachella Valley Integrated Regional Water Management (IRWM) Region, and demonstrates that it based on sound technical information, analyses, and methods as directed in the ***Technical Analysis Standard****.*

3.1 Coachella Valley Issues and Needs

To clearly establish the Coachella Valley IRWM/Stormwater Resource (SWR) Plan Objectives (see *Chapter 6 Objectives*), the following section outlines the issues, needs, and conflicts related to water management in the Coachella Valley. The information provided on this chapter is based on the information about the Coachella Valley IRWM Region's (Region) water resources, which are available in *Chapter 2 Region Description*.

The issues and needs included in the following sections are listed below.

1. Water Demand
2. Water Supply
   - Groundwater
   - Imported Water
   - Surface Water
   - Water Conservation
3. Recycled Water
4. Stormwater
5. Water Quality
   - Groundwater
   - Imported Water
   - Surface Water
   - Wastewater/Recycled Water
   - Stormwater
6. Flood Management
7. Natural Resources
8. Disadvantaged Communities
9. Tribal Nations

It is important to recognize that climate change has the potential to impact these issues and needs in different ways. Climate change is extensively discussed in Section 3.2 and in *Chapter 6 Objectives* in this IRWM/SWR Plan.

3.1.1 Water Demand

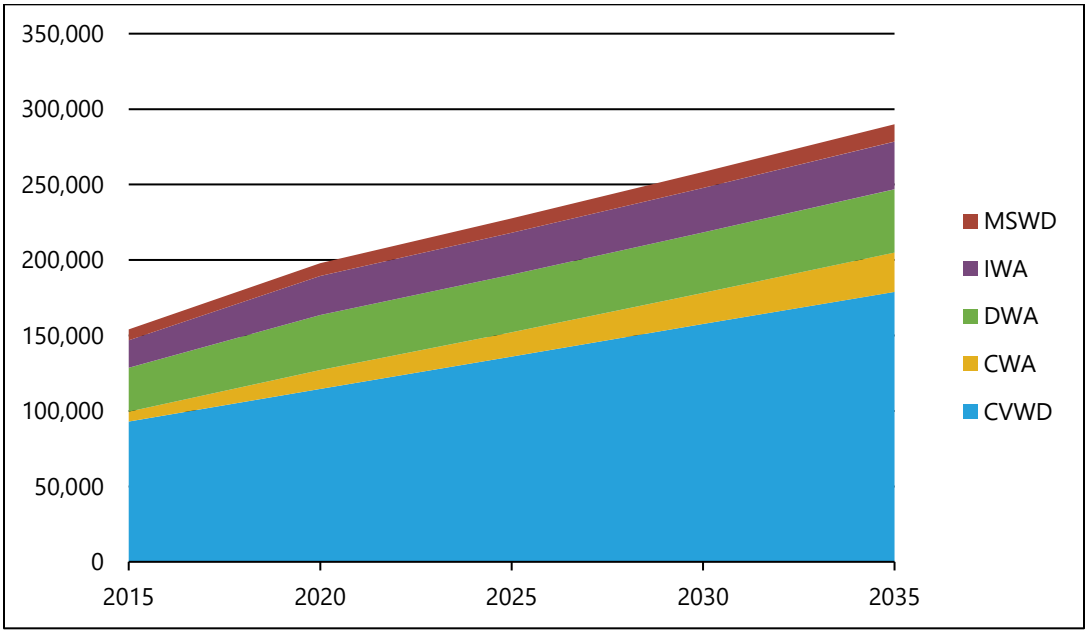
The total potable water (water that meets drinking water standards) demand for Coachella Valley Regional Water Management Group (CVRWMG) agencies is projected to increase by approximately 50% from 197,911 acre-feet per year (AFY) in 2020 to 289,890 AFY in 2035. A breakdown of urban water demand by agency as reported in the agencies' 2010 Urban Water Management Plans (UWMPs) is shown in **Figure 3-1** (see also *Chapter 2 Region Description,* **Table 2-13**: Total CVRWMG Agency Projected Demands).

Water agencies recently prepared 2015 updates to their UWMPs, which took the recent recession, associated changes in local development patterns, and water conservation mandates into account. Because of the economic recession since 2007, the rate of growth has moderated in the near term. However, overall growth in Coachella Valley is expected to increase through 2045, as the effect of the

recession on growth is expected to attenuate over the long-term planning horizon. Future changes in land uses, including future conversions of agricultural or vacant lands to urban land uses, development on Tribal lands (particularly in eastern Coachella Valley), and annexation of lands by cities or expansion of their spheres of influences affect the amount of growth (CVWD 2012; CVWD 2016a; CVWD et al. 2013).

As described in *Section 2.4.2 Water Demand* and shown in **Figure 3-1**, water demands are projected to nearly double from 2015 to 2035. This increase in demand is largely driven by projected population growth in the Coachella Valley. **Figure 3-2** provides a projection of water demand for different uses for the Coachella Valley from the 2010 Coachella Valley Water Management Plan (WMP) and Mission Creek-Garnet Hill WMP. Due to projected residential growth in the Coachella Valley (discussed in *Chapter 2 Region Description*), urban demands are expected to increase at a faster rate than agricultural demands.

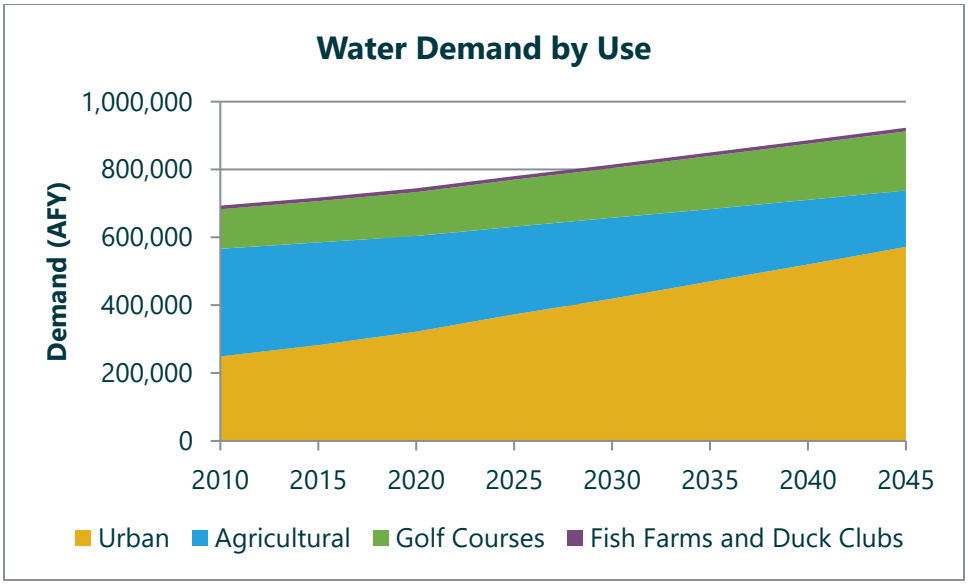
Figure 3-1: Total Projected CVRWMG Agency Potable Water Demand with Conservation[1]



1. Projections are for a normal water year and include water losses.

Sources: CVWD 2016a; DWA 2016; MSWD 2016; CWA 2016; IWA 2016

Figure 3-2: Total Water Demand Projections for Coachella Valley IRWM Region



Source: CVWD 2012; CVWD et al. 2013

Note: Duck Clubs are private clubs for duck hunters. Fish farms and duck clubs are defined as recreational non-potable water uses in the CVWD UWMP (CVWD 2016a).

Increasing Water Demands

Population growth and changes in land use correspond to an increase in water demand and pressure on the existing water supply sources, including the groundwater basins (CVWD 2012; CVWD 2016a; CVWD et al. 2013; IWA 2016; MSWD 2016; DWA 2016; CWA 2016). As shown in **Table 2-11**, the total water demand projected in the plan area for the year 2040 is 886,293 AFY (CVWD 2012; CVWD et al. 2013; CVWD 2016a; IWA 2016; DWA 2016; CWA 2016; MSWD 2016).

Water supply sources in the Coachella Valley include groundwater, imported water, surface water, and recycled water; although groundwater is the Region's primary water resource (CVWD 2012; CVWD 2016a; CVWD et al. 2013; IWA 2016; MSWD 2016; DWA 2016; CWA 2016). Due to the role of groundwater as the Region's primary water supply source, increased water demand would have the greatest impact on groundwater supply. Increased demand could lead to groundwater overdraft if those demands are not met with available local water supply sources such as recycled water.

3.1.2 Water Supply

Coachella Valley water supplies are primarily obtained from: imported water supplied through the Coachella Canal and the Colorado River Aqueduct, as well as groundwater pumped from the Coachella Valley Groundwater Basin. However, concerns over Coachella Valley's future water supplies has increased due to a combination of drought, reductions in imported water deliveries, over pumping of groundwater, and seasonal variation in surface water. These concerns are discussed further below.

Groundwater

The Coachella Valley Groundwater Basin encompasses much of the Coachella Valley floor. Geologic faults and structures divide the basin into five subbasins: Whitewater River (Indio), Garnet Hill, Mission Creek, Desert Hot Springs, and West Salton Sea. The Whitewater River Subbasin, the largest of the five subbasins, has a storage capacity of approximately 30 million acre-feet (CVWD 2012). The Mission Creek Subbasin has an estimated total storage capacity on the order of 2.6 million acre-feet. The Garnet Hill Subbasin has an estimated total storage capacity on the order of 1.0 million acre-feet (CVWD et al. 2013).

A confining layer, or aquitard, extends from near La Quinta to the Salton Sea, and conceptually divides the area into four main hydrogeologic units: the semi-perched aquifer, the upper aquifer, the aquitard, and the lower aquifer (refer to **Figure 3-5** below). Capping the upper aquifer at the surface are tight clays and silts with minor amounts of sands, within which semi-perched groundwater occurs (CVWD 2012). The semi-perched aquifer is extensive and generally retards the deep percolation of surface runoff and applied irrigation water. The 100 to 200 foot-thick aquitard, located below the upper aquifer, restricts groundwater flow between the upper and lower aquifers (IWA 2008).

Groundwater Overdraft

Groundwater supply consists of a combination of natural inflow and returns from groundwater and imported water use. Despite the large amount of artificial groundwater recharge, the local groundwater basin has periodically been in overdraft throughout recent decades. The loss in groundwater storage in 2009 was lower than historical loss due to increased delivery of the Region's State Water Project (SWP) allocations that are provided via exchange with the Metropolitan Water District of Southern California (MWD) at Whitewater River Groundwater Replenishment Facility (GRF) and increased Canal water recharge at the Thomas E. Levy GRF in the eastern Coachella Valley beginning in 2009. For example, the 2013 Coachella Valley Water District (CVWD) Engineer's Report on Water Supply and Replenishment Assessments for Mission Creek, East Whitewater River, and West Whitewater River all noted that groundwater monitoring wells showed water level increases, indicating reductions in overdraft conditions, and reduced rates of overdraft.

As reported in the 2010 Coachella Valley WMP, for the Whitewater River and Garnet Hill groundwater basins, the long-term average of natural inflow is about 57,000 AFY and varies from about 8,000 AFY in very dry years to over 200,000 AFY in extremely wet years. From 2000 to 2009, natural inflows were below normal averaging about 40,000 AFY. Returns from use vary with water demands. From 2000 to 2009, returns from use are estimated to average about 240,000 AFY. During this same period, about 51,000 AFY of imported water was recharged in the basin. Total inflows are estimated to be about 331,000 AFY (CVWD 2012). Outflows from the basin consist of pumping, flows to the agricultural drainage system, evapotranspiration by native vegetation and subsurface outflow to the Salton Sea. For the 2000-2009 period, groundwater pumping averaged about 389,000 AFY. Drain flows are estimated be about 48,000 AFY, while evapotranspiration and subsurface outflow averaged about 4,000 AFY. Total basin outflows for this period averaged 441,000 AFY (CVWD 2012). This equals basin pumping in excess of total recharge by 110,000 AFY.

Regional water levels, including those in the Mission Creek and Garnet Hill Subbasins, have been declining since the early 1950s due to scarce annual precipitation and groundwater extractions. Groundwater level data indicate that since 1952, water levels have declined at a rate of 0.5 to 1.5 feet per year (CVWD et al. 2013). Continued overdraft without additional recharge would have significant consequences for the Coachella Valley, including:

- Land subsidence and associated permanent loss of groundwater storage capacity in some areas, along with resultant potential for ground fissures and damage to buildings, sidewalks, streets, wells, and buried pipelines;
- Increased costs to pump water and deepen wells; and
- Water quality degradation, which includes increased salinity from Salton Sea intrusion and perched water intrusion.

Any reductions in other water supplies (e.g., imported water allocations) resulting from droughts, climate change, or litigation could further erode groundwater supply availability, as there is insufficient water supply to meet projected demands without additional water supply sources.

To eliminate long-term overdraft conditions, groundwater must be managed carefully in combination with other water management strategies. Groundwater pumping needs to be brought into balance through other means including conservation, acquisition of additional water supplies, conjunctive use programs to maximize supply reliability, source substitution programs (e.g., recycled water or desalinated water), and groundwater recharge programs. Failure to achieve this balance could lead to continued water level declines, water quality degradation, land subsidence (which can result in loss of groundwater storage and impacts on infrastructure), and increased pumping costs (CVWD 2012; CVWD 2016a; IWA 2008; CVWD et al. 2013; IWA 2016; MSWD 2016; DWA 2016; CWA 2016). While reversal of overdraft would eliminate the above risks, increasing water levels could also result in other types of risks, including shallow groundwater, liquefaction, and artesian flow. The challenge in groundwater management is to achieve an appropriate balance between the resulting higher groundwater levels and the risks and benefits associated with those levels (CVWD 2012).

Agricultural Drainage

Within the eastern Coachella Valley, agricultural tile drains were installed to drain shallow groundwater. Most of the drains empty into the Coachella Valley Stormwater Channel (CVSC), while a few smaller open channel drains convey flows directly to the Salton Sea. Agricultural drain flows are needed to export salt from the Region and to maintain habitat in the CVSC, agricultural drains, and the Salton Sea. Water levels in the underlying groundwater aquifers and the quantity of applied irrigation water determine the amount of flow in the agricultural drains. Additionally, groundwater use has the potential to impact agricultural drain flows as declining groundwater levels may result in negative pressure, meaning that groundwater would flow down into the basin rather than up into the agricultural drain system. Any change in the amount of agricultural drain flows can have consequences to biological resources in the CVSC and Salton Sea (CVWD 2012).

Land Subsidence

Groundwater withdrawal is the most likely cause of land subsidence in the Coachella Valley. Subsidence can lead to visible cracks, fissures, or surface depressions, damage to structures (e.g., canals, utilities, roads, and buildings), damage and loss in effectiveness of the subsurface agricultural drainage system, disruption of surface drainage and irrigation systems, and loss of vertical elevation. Groundwater pumping has caused groundwater levels to decrease more than 60 feet in portions of the eastern Coachella Valley from La Quinta to the Salton Sea, and raised significant concern about water quality degradation and land subsidence in this area. Recently, however, reduced pumping in the eastern Coachella Valley along with recharge at the Thomas E. Levy Facility has resulted in a return to artesian flow in the vicinity of Mecca. Groundwater

monitoring results indicated that a pumping hole created by an aquaculture facility has recovered since the facility reduced pumping from about 8,000 AFY to 2,000 AFY.

Groundwater levels in the western Coachella Valley have also decreased substantially, except in the areas near the Whitewater Spreading Facility where artificial recharge has successfully raised water levels. **Figure 3-3** shows areas within the Region where land subsidence studies have been conducted by the U.S. Geological Survey. These studies have inferred land subsidence in the areas marked in pink.

In 1996, the United States Geological Survey (USGS), in cooperation with CVWD, established a geodetic network of monuments to monitor vertical changes in land surface in the eastern Coachella Valley. Results of the monitoring program, published in a 2007 report, identified at least four areas in the Coachella Valley that had experienced land surface elevation changes, indicating that land subsidence occurred in three of the areas (Palm Desert, Indian Wells and La Quinta) and both subsidence and uplift apparently occurred in one of the areas (Indio-Coachella) between 2003 and 2005. These areas of subsidence coincide with or are near areas where groundwater pumping generally caused groundwater levels to decline. Other local areas in the Coachella Valley also may have deformed, but the size of these areas and the amount of deformation generally are small compared with the Palm Desert, Indian Wells and La Quinta areas. Eight of the fourteen measurement sites for which subsidence rates could be compared show subsidence rates increased by as much as a factor of 10 between 2000 and 2005, compared with subsidence rates prior to 2000 (CVWD 2012; USGS 2007; IWA 2008).

Ultimately, subsidence could limit the quantity of pumping in the Coachella Valley; however, as indicated in the previous section, increased groundwater levels indicate reductions in overdraft conditions, and are likely to reduce future land subsidence.

Figure 3-3: Land Subsidence Study Areas

Semi-Perched Aquifer

If the amount of overdraft reduction is greater than the reduction in return flows, increased water levels could occur in the semi-perched aquifer. High groundwater levels in shallow perched or semi-perched aquifers can lead to waterlogging of soils which can lead to septic system failures, structural flooding (seepage into subterranean parking, etc.), utilities damage (flooded vaults, sewer infiltration, etc.) and saturated root zones resulting in adverse effects on agricultural production and landscaping. Currently, extensive agricultural irrigation in the eastern Coachella Valley contributes a significant amount of return flow to the semi-perched aquifer maintaining the shallow groundwater levels. Continued use of the drainage system is expected to be necessary to maintain water levels and to export salt resulting from irrigation (CVWD 2012).

Liquefaction

As overdraft conditions improve in the eastern Coachella Valley and groundwater levels rise, the potential for liquefaction increases, as well as the need for adequate drainage and proper foundation design for structures within identified liquefaction zones (CVRWMG Planning Group Meeting – May 19, 2010). Liquefaction is a physical process by which sediments below the water table temporarily lose strength and behave as a liquid rather than a solid. In the liquefied condition, soil may deform enough to cause damage to buildings and other structures. Seismic shaking is the most common cause of liquefaction. As indicated in the Coachella Valley WMP, liquefaction occurs in well-sorted (similar sized) sands and silts in areas with high groundwater levels. Liquefaction has been most abundant in areas where groundwater occurs within 30 feet of the ground surface and liquefaction hazards have been noted for the area from Indio southeast to the Salton Sea. The California Department of Water Resources (DWR) indicated a liquefaction hazard exists for the majority of the eastern Coachella Valley floor because of perched groundwater and presence of appropriate soils, although there is no surface indication of any liquefaction occurring in the past (CVWD 2012).

Artesian Conditions

As overdraft conditions are reduced, groundwater levels in the deep aquifers are expected to return to conditions similar to those of 1970s and 1980s, when wells exhibited positive pressure that led to artesian conditions. While flowing artesian conditions can reduce the amount of pumping energy required to extract groundwater, such conditions can also lead to loss of water from improperly controlled wells, property damage if water is not routed to drainage channels, vector control issues, and leakage from the deeper aquifers into the shallow aquifers through wells that are perforated in both zones (which can potentially lead to water quality degradation). Recent observations indicate that artesian conditions have returned to portions of the eastern Coachella Valley due to changed pumping patterns, including a significant pumping reduction by aquaculture operations south of Mecca, and increased recharge from operation of the Thomas E. Levy GRF and other recharge facilities (CVWD 2012; CVWD 2013a).

Garnet Hill Underflow

The Garnet Hill Subbasin is upgradient of Whitewater River Subbasin and groundwater underflow typically flows from the Garnet Hill Subbasin to the Whitewater River Subbasin. However, high groundwater levels in the Whitewater River Subbasin following large recharge events may limit flow from Garnet Hill Subbasin to the Whitewater River Subbasin or even cause underflow to the Garnet Hill Subbasin. Presently, there is limited groundwater level monitoring data available for the Garnet Hill Subbasin and additional monitoring is needed (CVWD et al. 2013).

Conjunctive Use

With the increased variability and uncertainty of imported water deliveries, conjunctive use could provide groundwater storage opportunities for other water agencies in the State of California. Issues related to this option include the need for recharge facilities to have sufficient capacity to allow capture of surplus water deliveries during future wet periods, the availability of water above and beyond existing customers' demands to recharge, and additional pumping capacity. Under the Advanced Delivery and SWP Exchange Agreements, the mechanism for returning stored water to entities outside the basin is through a reduction in deliveries of the Region's SWP allotments. If stored water is to be returned through reductions in Canal water deliveries, then deliveries for recharge would need to be reduced during the payback period. If recharge reductions are insufficient, then reductions in direct deliveries would need to be offset through increased groundwater pumping (CVWD 2012).

Source Substitution

Source substitution, where an alternate water source is used in the place of pumped groundwater, is important potential water, money, and energy conservation measure associated with groundwater. Alternate sources of water in the Coachella Valley include recycled water, Colorado River water, desalinated agricultural drain water, and SWP allotments delivered via exchange with MWD. Depending on use, these sources may not be treated to potable standards, but are used for irrigation and other non-potable uses, though in some areas, such as the eastern Coachella Valley, urban groundwater users may be converted to treated Colorado River water. Some issues with potential source substitution projects may include regulatory (e.g., ability to meet water quality standards), user resistance, cost, geological and physical limitations, and infrastructure limitations (CVWD 2012).

Costs

Costs related to groundwater issues expressed in the preceding sections could include: reduced groundwater storage capacity; increased power consumption due to increased pumping lifts; repair and replacement of damaged infrastructure; and additional water treatment requirements due to decreases in water quality. The cost of addressing groundwater issues may disproportionately impact economically disadvantaged communities if such costs result in increased water rates or fees.

Imported Water

The Region relies on SWP allotments delivered via exchange with MWD and Colorado River supply via the Coachella Canal (refer to *Chapter 2 Region Description*). However, concern regarding the reliability of imported water supplies has increased due to: reductions in SWP deliveries (potentially less than the Region's designated allocations); drought in the Colorado River Basin and recent litigation that could potentially affect the 2003 Quantification Settlement Agreement (QSA); and increased costs for importing water. As described below, SWP reliability is of greater concern than Colorado River reliability, which in the absence of extreme shortages, is guaranteed full delivery.

SWP Reliability

CVWD and Desert Water Agency (DWA) do not have a direct delivery connection to the SWP and instead receive their deliveries via an exchange agreement with the MWD where MWD takes CVWD and DWA's SWP allocations and in turn delivers and equal amount of Colorado River Water via the MWD Colorado River Water Aqueduct. Per DWA and CVWD's SWP allocation agreements, they have a combined SWP

allotment (Table A Allotment) of 194,100 AFY. Despite the agencies' contractual allotments, each year, DWR determines the amount of water available for delivery to SWP contractors based on hydrology, reservoir storage, the requirements of water rights licenses and permits, water quality, and environmental requirements for protected species in the Sacramento-San Joaquin Delta (Delta). Thus, SWP supplies fluctuate annually. DWR estimates the current average reliability of the SWP to be 60% of Table A Amounts[1], although the reliability of the SWP water has decreased over time. Other factors that could further reduce the SWP reliability include the uncertainty in modeling restrictions associated with biological opinions, risk of levee failure in the Delta, additional pumping restrictions resulting from biological opinions on new species or revisions to existing biological opinions, impacts associated with litigations[2], and climate change impacts. Current efforts in the Delta (e.g., Bay-Delta Conservation Plan) may improve water supply reliability but not necessarily yield; if the Bay Delta Conservation Plan is implemented, then SWP supply reliability could potentially be expected increase to 77% of Table A (CVWD 2012; CVWD et al. 2013; DWA 2009a).

Colorado River Reliability

Although the Coachella Valley's Colorado River supply faces problems that could impact long-term reliability, interim guidelines for Lower Basin shortages and coordinated operations for Lake Powell and Lake Mead were adopted in 2007 that will provide Colorado River recipients a higher degree of reliability. Some potential threats to reliability include the prolonged Colorado River Basin drought, Colorado River shortage sharing agreement, endangered species and habitat protection, the litigation challenging the validity of the QSA[3], and climate change. However, under the interim guidelines it is expected that California would only experience shortages if the total shortage in the Lower Basin exceeds 1.7 million AF. Due to California's Colorado River priority system, all delivery shortages would be borne by MWD, which has a lower priority than CVWD. Consequently, no reduction in CVWD's Colorado River supplies is projected at this time (CVWD 2012). Although recent litigation posed a threat to the stability of the 2003 QSA, a June 4, 2013 ruling by the Superior Court of California upheld the QSA, securing the water deliveries outlined in that document. Thus, current Colorado River allocations to the water agencies for beneficial consumptive use and transfers and exchanges of conserved water to and between water agencies and other parties under the QSA for the 75-year period starting in 2003 are preserved.

---

[1] SWP water contractors submit annual requests to the DWR for water allocations and DWR makes an initial SWP Table A allocation for planning purposes, typically in December of each year. Throughout the year, as additional information regarding water availability becomes available to DWR, its allocation/delivery estimates are updated.

[2] In October 2005, the state issued the Delta Smelt Action Plan (DSAP) outlining a 14-point program to identify and understand causes of recent delta smelt population decline and describe actions that should be taken to protect the species. In November 2006, a lawsuit was filed by the California Sportfishing Protection Alliance (CSPA) and other environmental organizations to specifically stop the pumping in the South Delta in an attempt to prevent further decline of the smelt population. In March 2007, a judge ordered DWR to shut down pumping in the South Delta until necessary permits were obtained. In a landmark decision in August 2007, a Federal Judge ordered State and Federal water project managers to reduce the amount of water pumped from the Delta to protect the threatened delta smelt from extinction. The order, which was finalized by the U.S. District Court in December 2007, reduced pumping by 30% from the end of December until June (IWA, 2008).

[3] In 2003, CVWD, IID and MWD successfully completed negotiation of the QSA, which quantifies the Colorado River water allocations of California's agricultural water contractors for the next 75 years and provides for the transfer of water between agencies. Under the QSA, CVWD has a base allotment of 330,000 AFY. In accordance with the QSA, CVWD has entered into water transfer agreements with MWD and IID that increase CVWD supplies by an additional 129,000 AFY by 2026 and remain at that level for the 75 year term of the QSA (CVWD 2011).

Recharge Basin Operation

The timing and the amount of Colorado River water available for recharge is impacted by MWD's water delivery schedule. The amount of available water may be lower than what is required because of water supply reliability and the distribution of imported water recharge between the Whitewater and the Mission Creek Subbasins (CVWD et al. 2013).

With respect to recharge pond operations and maintenance, some water is lost due to evaporation at the artificial recharge sites. Conducting regular maintenance of spreading basins for silt removal will maintain or increase existing infiltration rates and minimize evaporation loss (CVWD et al. 2013).

Surface Water

Surface water from Whitewater River, Snow Creek, Falls Creek and Chino Creek, and smaller creeks and washes is used as water supply for western Coachella Valley urban and golf course customers. In 2009, surface water supplied less than 1% of the total water supply to the Coachella Valley.

Surface Water Reliability

Because surface water supplies are affected by variations in annual precipitation, the annual supply is highly variable. Surface water runoff either percolates in streambeds or is captured in mountain-front debris basins where it recharges the groundwater basin. Since 1993, an average of approximately 60,000 AFY of surface water recharged the Whitewater River Subbasin (CVWD 2012). All surface water that is not captured and used for domestic water supply is accounted for and put to beneficial use by recharging the groundwater aquifer.

Surface water features that contribute to recharge in the Mission Creek Subbasin include Mission Creek, Dry Morongo Wash, and Big Morongo Canyon. Surface water features that contribute to recharge in the Garnet Hill Subbasin includes the Whitewater River. A portion of the imported water released from the Colorado River Aqueduct into the Whitewater River also percolates into the Garnet Hill Subbasin. Recharge in the Garnet Hill Subbasin from the Whitewater River is approximately 7,000 AFY (CVWD et al. 2013). Long Canyon Creek and the Little Morongo Creek provide recharge in the Desert Hot Springs Subbasin, as well as to the Mission Creek Subbasin during times of substantial rainfall. Total recharge varies from approximately 4,900 AFY to 11,800 to 14,300 AFY to both the Mission Creek and Desert Hot Springs Subbasins (CVWD et al. 2013).

Water Conservation

All five water purveyors within the Coachella Valley recognize that water is a limited resource and that water conservation and use efficiency should be actively pursued. Each agency implements a variety of irrigation and/or domestic water conservation measures, including model landscape ordinances, water-efficient irrigation controls, water efficient plumbing, water-wise landscaping programs, conservation outreach and education, conservation pricing of water rates, and water audits (CVWD 2016a; DWA 2016; MSWD 2016; CWA 2016; IWA 2016). **Figure 3-4** provides a screenshot from the CVRWMG's regional water conservation program website www.cvwatercounts.com.

Figure 3-4: CVRWMG Regional Water Conservation Program

Conservation

Conservation efforts are critical to reduce water demand over the long-term, and to reduce the pressure on the groundwater supply. Current water conservation efforts by various agencies have focused on urban use, agricultural irrigation, and golf course irrigation. For example, Coachella Valley cities have adopted the Coachella Valley Landscape Ordinance (2009), conducted water audits, instituted rebate program, implemented tiered pricing, and conducted public information and education programs. Many cities and agencies are signatory to the Memorandum of Understanding (MOU) Regarding Urban Water Conservation in California and are therefore members of the California Urban Water Conservation Council (CUWCC). Members of the CUWCC must comply with all Best Management Practice (BMP) targets outlined in the MOU that have been determined appropriate for the conditions within its service area. Water conservation best management practices (also referred to as demand management measures or DMMs) that are set forth by the CUWCC and implemented by the CVRWMG agencies are provided below in **Table 3-1**. Increased conservation may be required to meet the conditions of Senate Bill SB 7X7, which stipulates urban water purveyors to reduce water use by 20% by the year 2020. However, because of the existing low outdoor use, additional conservation may be limited, but may be extended to water users in the region that are not covered by SB 7x7 (e.g., for private producers) (CVWD 2012; CVWD et al. 2013; MSWD 2016; IWA 2016; DWA 2016; CWA 2016). Water conservation increases the reliability of supplies to the Coachella Valley and is being further pursued through the *Regional Water Conservation Program* funded through IRWM grants (refer to *Chapter 11 Framework for Implementation* for more information).

Table 3-1: Best Management Practices Implemented by CVRWMG Agencies

Best Management Practices		Implementing CVRWMG Agency:				
California Urban Water Conservation Council BMPs		**CVWD**	**CWA**	**DWA**	**IWA**	**MSWD**
1	Water Survey Program for Single-Family and Multi-Family Residential Customers	X	X	X	X	
2	Residential Plumbing Retrofit Program		X	X	X	X
3	System Water Audits, Leak Detection and Repair Program	X	X	X	X	X
4	Metering with Commodity Rates for all New Connections and Retrofit of Existing Connections Program	X	X	X	X	X
5	Large Landscape Conservation Programs and Incentives Program	X	X	X		X
6	High-Efficiency Washing Machine Rebate Program					
7	Public Information Program	X	X	X	X	X
8	School Education Program	X[1]	X	X	X	X
9	Conservation Programs for Commercial, Industrial, and Institutional Accounts Program	X	X	X		
10	Wholesale Agency Programs	N/A	N/A	N/A	N/A	N/A
11	Conservation Pricing Program	X	X		X	X
12	Water Conservation Coordinator Program	X	X	X	X	X
13	Water Waste Prohibition Program	X		X	X	X
14	Residential Ultra-Low-Flush Toilet Replacement Rebate Program	X	X	X		
Other (non-CUWCC) Conservation BMPs Implemented in the Region:						
Main line/equipment replacements to stop leaks		X	X	X	X	X
Have field employees watch for water waste and report water waste issues to customers		X	X	X	X	X
High bill investigations (sending letters to water customers whose water bills or water use spikes)		X	X	X	X	X
Installation of new meters to detect continual flow that is indicative of leaks		X	X	X	X	X
Monitor water levels within the reservoirs through a telemetry system and turn off wells when reservoir levels reach specific levels to prevent over-pumping and possibly overflowing the reservoirs		X	X	X	X	X

Best Management Practices	Implementing CVRWMG Agency:				
California Urban Water Conservation Council BMPs	**CVWD**	**CWA**	**DWA**	**IWA**	**MSWD**
Daily visits to every operating facility to ensure that the system is operating correctly and to inspect the facilities for things such as leaking pipes	X	X	X	X	X
Groundwater replenishment activities	X		X		
Planning efforts that address water conservation such as Urban Water Management Planning, Integrated Regional Water Management Planning, and General Planning	X	X	X	X	X

1. CVWD's School Education Program serves CVWD, CWA, and IWA service areas

Local Economy

Water conservation measures must consider the potential effect on industries that rely on water for irrigation (tourism, golf, agriculture). Water conservation efforts are in place consistent with State law, while not causing significant impacts to water users. While water conservation regulations do not prohibit development of water-dependent enterprises, regulations are in place in various cities in the Coachella Valley to help reduce the water use of such businesses. For example, golf courses are limited in the amount of turf they may install to help reduce their water demands (CVWD 2012).

3.1.3 Recycled Water

Recycled water is needed to meet anticipated future demands and offset existing use of groundwater for non-potable uses, as well as provide for supply redundancy. However, during the summer months, recycled water supplies are not sufficient to meet all current demands; users are required to use their private wells or other water sources to supplement the recycled water supply. A map of existing recycled water facilities is provided in **Figure 2-5** (see *Chapter 2 Region Description*).

Local Supply Development

One of the goals of the State's Recycled Water Policy (2009) includes the increase of recycled water by at least 1 million AFY over the 2002 levels by 2020. Because recycled water is such a valuable resource, it is considered within the Coachella Valley as an additional, local water supply to help eliminate current and future overdraft of the groundwater basins (by helping to meet anticipated future demands and offsetting existing use of groundwater for non-potable uses) and provide for supply redundancy (CVWD 2012; CVWD et al. 2011; CVWD 2016a; DWA 2016; IWA 2016; MSWD 2016; CWA, 2016). Not all agencies in the Coachella Valley currently operate a recycled water system. Where recycled water has not been used, recycled water systems are currently being evaluated (MSWD 2016; IWA 2016; CWA 2016a). The feasibility of a recycled water system is driven by the proximity of suitable users to the recycled water supply source (CVWD et al. 2013). Thus, the challenge is to cost-effectively link recycled water supply to customers; one possibility may be through interagency partnerships (CVRWMG Planning Group meeting - May 19, 2010). Recycled water has been historically used for landscape irrigation at golf courses and other urban landscaped areas in parts of the Coachella Valley. The amount of wastewater available for recycling in the future primarily depends on growth in the Coachella Valley and water quality regulations. According to the Coachella Valley WMP, within the Whitewater River Subbasin, recycled water could

meet as much as 12,000 AFY of non-potable demand in the Coachella Valley by 2045, based on order of magnitude estimates of water demands and wastewater flows (CVWD 2012). Mission Springs Water District (MSWD) is currently in design for a new wastewater treatment plant, the West Valley Water Reclamation Facility, with an initial treatment capacity of 1.5 mgd, within the area of the Mission Creek and Garnet Subbasins. While surface spreading of effluent is currently proposed, MSWD anticipated adding tertiary treatment in a subsequent phase. The projected recycled water use in 2040 is 6,400 AFY (MSWD 2016). As growth in the eastern Coachella Valley continues, there is potential for use of up to 53,000 AFY of recycled water by 2045, though this recycled water use may impact habitat along the CVSC and the Salton Sea by reducing flows (CVWD 2012).

Seasonal Variability

Wastewater flows in the Region peak during winter during high-tourism months. Recycled water demands, however, peak during summer, when the precipitation is low, and heat is high. Agencies are currently using percolation ponds for seasonal groundwater storage; percolation is expected to be reduced as recycled water customer bases develop in the future (CVWD 2012; CVWD et al. 2013).

In the western Coachella Valley, demand for non-potable water typically exceeds the available supply, especially in the summer months. Irrigators using recycled water currently must supplement that supply with local groundwater to meet peak summer demands (CVWD 2012; DWA 2016). In an effort to stabilize the supply and demand, DWA recently built an influent tank reservoir to store water in periods of high supply. Augmentation using other sources of supply would be necessary in the future to address the imbalance of demand and supply.

Costs

Because little reuse of wastewater is occurring in the eastern Coachella Valley, essentially all wastewater produced from the three eastern Coachella Valley wastewater treatment plants is discharged into the CVSC. However, as growth occurs in the eastern Coachella Valley, more wastewater will be generated and require treatment (CVWD 2012). The water agencies face challenges associated with cost-effectively linking recycled water supply to customers (i.e., strategic location of treatment facilities), possibly through inter-agency partnerships in the future.

3.1.4 Stormwater

Riverside County Flood Control and Water Conservation District (RCFCWCD) and CVWD are the Region's flood control districts. They operate and maintain a series of regional flood control facilities throughout the Coachella Valley that ultimately drain to the Salton Sea during major and significant storm events (refer to *Chapter 2 Region Description*). Local cities and the County of Riverside manage localized urban drainage systems that drain to these facilities.

The backbone of this system is the Region's 49-mile Whitewater River Stormwater Channel/Coachella Valley Stormwater Channel (WRSC/CVSC). West of Washington Street, the channel is referred to as the WRSC; east of Washington Street, the channel is referred to as the CVSC. The WRSC follows the natural Whitewater River, and flows in the WRSC are ephemeral, while the CVSC is the channelized portion of the Whitewater River, and generally contains flow year-round east of Dillon Road from agricultural drains, permitted discharges, and stormwater runoff from occasional storm flows.

Local cities and the County convey runoff from major storm events to the WRSC/CVSC. The stormwater channel is designed for the Standard Project Flood of 82,000 cubic feet per second (City of Coachella 2012). Three wastewater treatment plants (Valley Sanitation District (VSD), City of Coachella, and CVWD's WRP-4) also discharge effluent to the CVSC. Flows are then conveyed by the WRSC/CVSC to the Salton Sea.

Stormwater Capture

Stormwater capture has been identified as a potential method to augment local water supplies in the Coachella Valley. Stormwater retention systems located in strategic areas of suitable geology could capture runoff from surrounding mountains within the Whitewater River and Mission Creek Subbasins (CVWD 2012; CVWD et al. 2013; CVWD 2016a). The 2013 Municipal Separate Storm Sewer System (MS4) permit requires builders of new developments to include stormwater capture and recharge infrastructure (Regional Board 2013). Water agencies will need to coordinate with the local cities and the County of Riverside to maximize use of stormwater capture and recharge infrastructure related to development, because management of development requirements is not under the purview of the water agencies (CVWD et al. 2013). While the 2013 MS4 permit requirement solidifies this strategy for runoff management, stormwater capture and beneficial use is a long-standing strategy in the Coachella Valley, where MS4 permittees have required stormwater onsite retention (detention and infiltration) through municipal ordinances years before the 2013 MS4 permit.

3.1.5 Water Quality

This section addresses key issues concerning Coachella Valley's water quality.

Water Supply

Groundwater

Groundwater supply from the Coachella Valley Groundwater Basin is generally of high quality. Disinfection is not required but is generally provided as a precautionary measure before distribution of water for potable uses. For a summary of recent groundwater quality concentrations, see **Table 2-19** in *Chapter 2 Region Description*. Current and emerging groundwater quality issues in the Coachella Valley include salinity, arsenic, nitrate, fluoride, ammonium, perchlorate, chromium-6, and uranium.

Although groundwater quality is generally considered high in the Region, groundwater quality is a concern in isolated areas of the Region. In the eastern Coachella Valley, groundwater overdraft has reduced groundwater flow into the agricultural drains, which has changed groundwater pressure conditions (refer to *Section 3.1.2 Water Supply* for more information). This change in pressure, if it results in negative pressure that directs water down into the groundwater basin, may result in water that is high in total dissolved solids (TDS or salts) migrating from the semi-perched zone downward to the Upper aquifer. **Figure 3-5** illustrates the structure of the local groundwater aquifer, including the semi-perched zone. Under these conditions, water in the Upper aquifer, which is generally of lower quality, may also migrate to the Lower aquifer, particularly along the margins of the basin, where the aquitard separating the two zones is thin or absent. The net result of such pressure changes would potentially be a decline in the water quality of the Lower aquifer in the eastern Coachella Valley (CVWD 2002).

In the eastern Coachella Valley, there is also concern about elevated levels of natural constituents in the groundwater. Naturally occurring substances such as uranium, arsenic, and fluoride have been detected, and are likely due to natural geologic conditions. As described in *Chapter 2 Region Description, Section 2.5.1 Groundwater Quality*, representatives of Disadvantaged Community (DAC) and tribal organizations report that groundwater supplies for some mobile home park communities within the eastern Coachella Valley have arsenic concentrations that exceed the regulatory standard maximum contaminant level (MCL) of 10 parts per million (ppm). Nitrates are a concern throughout the Coachella Valley with respect to septic systems but are also of concern in the eastern Coachella Valley due to the prevalence of septic systems in that area (refer to the section below regarding Wastewater/Recycled Water).

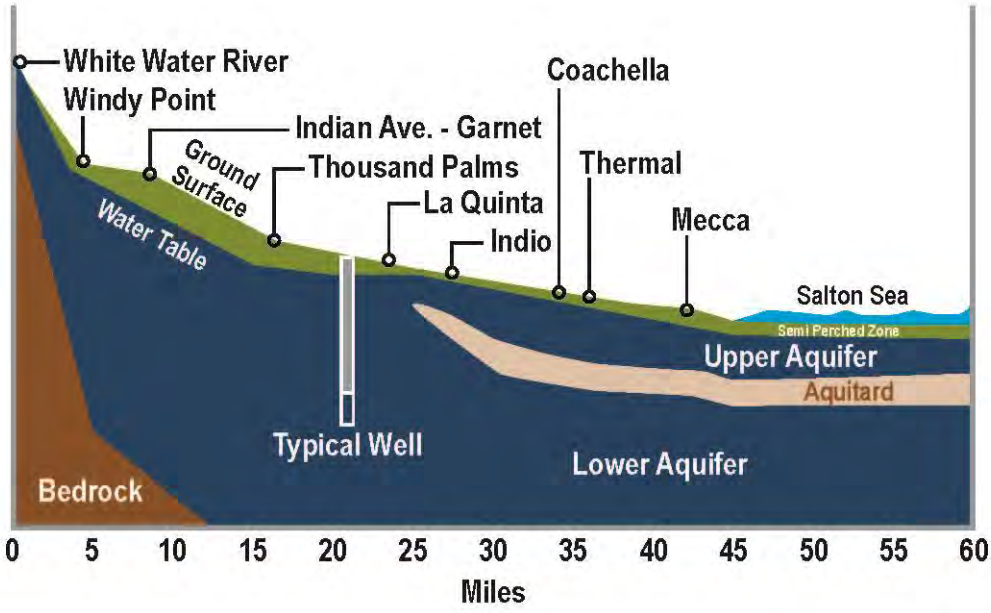
Additionally, a naturally-occurring high groundwater table within the semi-perched zone has the potential to saturate the root zone of crops and stifle growth or eliminate crop production. Therefore, a drainage system was developed for much of the eastern Coachella Valley to reclaim the area for farming. CVWD operates and maintains a collector system of 166 miles of pipe, along with 21 miles of open ditches, to serve as a drainage network for nearly 38,000 acres of irrigated lands. All agricultural drains empty into the CVSC, except those at the southern end of the Coachella Valley which flow directly to the Salton Sea. CVWD plans to begin desalting agriculture drainage to a quality equivalent to Canal water and delivering it for irrigation use by 2023 (CVWD 2005).

The CVRWMG has also addressed potential concerns regarding the organic compounds ethylene dibromide (EDB), trichloroethylene (TCE), dibromochloropropane (DBCP), and perchloroethylene (perc or PCE) in Coachella Valley groundwater. Current information demonstrates that EDB and TCE have not been detected in Coachella Valley groundwater, as both have been either banned or replaced. However, groundwater testing demonstrates that DBCP and PCE have been detected in isolated areas.

DBCP has been detected in some groundwater wells located within the Whitewater River Subbasin, and specifically in wells located in the communities of Palm Desert, Indian Wells, Bermuda Dunes, and La Quinta. DBCP was banned in California in the 1980's but was previously used as a soil fumigant that was primarily applied on grapes in the Coachella Valley to control nematodes. Despite its presence, evidence demonstrates that detected levels of DBCP range from 0.01 to 0.02 micrograms per liter (µg/L), which is below the drinking water MCL of 0.2 µg/L. CVWD monitors DBCP occurrences in the Coachella Valley and installs wells outside areas of concern or at greater depths to avoid this constituent.

Although PCE is a solvent widely used for dry cleaning and metal degreasing, detection of this substance in the Coachella Valley has been limited to isolated incidents. For example, a former dry-cleaning business has been identified as the source of a PCE plume in south Palm Springs and is currently subject to a cleanup order. PCE has also been detected in some wells in an area adjacent to the border of Rancho Mirage and Palm Desert within the Whitewater River Subbasin, although the source of PCE in this area has not been identified. When detected, PCE levels in these wells range from 0.5 µg/L to 1.5 µg/L, which is well below the drinking water MCL for PCE of 5.0 µg/L. CVWD monitors PCE occurrence in domestic wells and installs new wells outside areas of concern or at greater depths to avoid this constituent.

Figure 3-5: Coachella Valley Groundwater Basin Perched Zone



Source: (CVWD 2002)

Salinity

Some areas in the Coachella Valley such as Oasis and Salton City, as well as areas near fault lines, have naturally-occurring high salinity groundwater (CVWD 2012). TDS concentrations in groundwater may increase from artificial recharge of imported water (see Imported Water, below), from septic system waste disposal, saline underflows from the Desert Hot Springs Subbasin, and percolation of treated wastewater (CVWD et al. 2013). TDS concentrations in the groundwater basin need to be managed properly to ensure long-term suitability of groundwater quality in the basin. Potential options to manage TDS concentrations may have high costs; however, in accordance with the Recycled Water Policy, the agencies developed a Salt and Nutrient Management Plan in June 2015 and are currently in the process of addressing comments from the Regional Water Quality Control Board regarding this SNMP. Although TDS concentrations in the groundwater have increased over the past decades, concentrations of TDS remain below the MCL, and vary greatly across the Coachella Valley.

If desalination of groundwater, imported water supplies, or agricultural drain water from the CVSC is implemented, brine discharge and management will be a major issue in the Coachella Valley in the future. Considerations include high costs for handling and disposing brine, large land areas for evaporation ponds, and regulatory issues associated with disposal (CVWD 2012; CVWD et al. 2013).

Arsenic

Arsenic concentrations as high as 162 µg/L (compared to the MCL of 10 µg/L) have been observed in some eastern Coachella Valley municipal water supply wells, and as a result, groundwater treatment facilities have been built and operated to reduce arsenic levels in potable water supplies. In Coachella and the

unincorporated eastern Coachella Valley communities of Mecca, Oasis, and Thermal, 19 wells at mobile home parks have recently tested positive for high levels of arsenic ranging from 12 to 91 µg/L. These parks are served by private wells and are located some distance from CVWD's potable water system. About half of the parks have installed treatment filters to reduce the arsenic levels (CVWD 2012; CVWD 2016a). Arsenic at levels of less than 1 to 28 µg/L has been detected in several groundwater wells in the Mission Creek Subbasin. Arsenic concentrations for samples collected since 1981 have remained below the MCL and samples collected for MSWD wells in 2008 do not indicate any presence of arsenic. There is limited water quality data available to assess arsenic concentrations in the Garnet Hill Subbasin. (CVWD et al. 2013). Because arsenic degrades water quality, treatment is needed before groundwater distribution if they are above MCL (CVWD 2012).

Nutrients

Higher concentrations of nitrate above the MCL of 45 mg/L have been detected in some of the shallower portions of the Coachella Valley groundwater basin (CVWD 2012; CVWD 2016a). Nitrate concentrations are below the MCL for all recorded samples in the Mission Creek Subbasin (CVWD et al. 2013). Sources of nitrate include nitrogen-based fertilizers used for agriculture, golf courses and landscaping; septic tank discharges; wastewater disposal through percolation; natural sources like mesquite hummocks; and alluvial fan formations. Nitrates are generally found in the unsaturated and shallow aquifer zones above 300 to 400 feet and have not been observed in the deeper aquifer zones below 500 feet. Activities in the basin that could cause nitrate to leach into higher quality groundwater include recharge, pumping, and overdraft reduction. As nitrates readily migrate in groundwater, specific steps, such as locating recharge activities away from areas with high nitrate concentration, treating pumped groundwater, and blending with low-nitrate supplies, may be taken (CVWD 2012; CVWD 2016a; CVWD et al. 2013; RWQCB 2004).

Fluoride

Fluoride concentrations for public wells in the Mission Creek and Garnet Hills Subbasins are below the MCL for domestic water (2 mg/L). Fluoride exceeding the MCL has been observed in one private well. While State law requires water agencies to install fluoride treatment at water supply sources contingent upon the availability of funds, there is no fluoride treatment at drinking water wells in the Mission Creek or Garnet Hill Subbasins (CVWD et al. 2013).

Chromium-6

In July 2014, the California Department of Public Health (CDPH) Division of Drinking Water (now part of the State Water Resources Control Board (SWRCB)) established the nation's first MCL for chromium-6, with a standard of 10 µg/L. However, in May 2017, the Superior Court of Sacramento County issued a judgement invalidating the MCL for chromium-6 because economic feasibility of complying with the MCL wasn't considered. Upon adoption in 2014, approximately 50% of the Region's municipal wells became non-compliant. The cost for the Region to comply with any future chromium-6 MCL containing new chromium-6 levels above the 10 µg/L MCL is of significant concern. The SWRCB has been directed to conduct further studies to determine a more economically feasible standard and is expected to adopt a new MCL in the coming years. The CVRWMG agencies are continuing to study chromium-6 reduction technologies in anticipation of a future MCL.

Uranium

The source of uranium in the Coachella Valley has not been confirmed but is likely naturally derived from the basin's geologic formations, such as those found in the Mission Creek Subbasin (CVWD 2012; CVWD

2016a; CVWD et al. 2013). Though contamination along the Colorado River was thought to be a possible source, due to large uranium deposits upstream from the Coachella Valley, subsequent monitoring indicates that trace uranium levels observed in the groundwater are naturally occurring (CVWD 2012; CVWD 2016a). Uranium is detected in several groundwater wells in the Mission Creek Subbasin although none of the wells sampled in 2008 exceeded the four-quarter average MCL of 20 picocuries per liter pCi/L. One well was taken out of service because it exceeded primary MCL for uranium. Another well has well-head treatment for uranium. There is limited water quality data available to assess uranium concentrations in the Garnet Hill Subbasin (CVWD et al. 2013).

Future Recharge Issues

Long-term recharge with SWP allocations that are delivered via exchange with MWD, although not currently an option in the Region, could generate additional groundwater quality issues, because SWP Exchange water contains more total organic carbon and bromide than Colorado River water (both of which are precursors for creating disinfection byproducts).

Perched Water Intrusion

Groundwater quality may be degraded as a result of increased Salton Sea water and perched water intrusion. Sufficiently high groundwater levels lead to freshwater flow from the Coachella Valley to the Salton Sea. However, groundwater levels near the Salton Sea are low, posing a risk of flow reversal, where Salton Sea water, which is high in salinity and of generally poor quality, may flow into the semi-perched aquifer. From the perched aquifer, this poor-quality water may flow downward into the Upper and Lower aquifers, degrading their quality (CVWD 2012).

Imported Water

Although water supplies (described in *Chapter 2 Region Description*) come from the Colorado River, their water qualities vary slightly. The Coachella Canal diversion is further downstream than the Colorado River Aqueduct diversion (see **Figure 2-4**: Statewide Imported Water Systems); this results in higher concentrations of TDS and other constituents of concern, including the potential for invasive species such as Quagga mussels. TDS concentrations have averaged in MWD's Colorado River Aqueduct water 636 ppm since 1973 and in the Coachella Canal water (Avenue 52) 790 ppm since 1949 (CVWD 2012). TDS concentrations and other constituents are listed in **Table 2-19** in *Chapter 2 Region Description*.

Therefore, issues regarding imported water supply in Coachella Valley are: salinity of Colorado River water, hardness, and minerals, and potential presence of Quagga mussels.

Salinity

As discussed in the preceding water quality sections, Colorado River water has elevated TDS concentration compared to the natural TDS concentration of the groundwater, however those levels are still below the MCL for TDS. Based on historical and projected variations in Colorado River water quality, the TDS range for Colorado River water recharged at the Whitewater River Recharge Facility is 530 to 750 mg/L, averaging 636 mg/L since 1973. The TDS range for the Colorado River water delivered via the Coachella Canal[4] is 625 mg/L to 975 mg/L, averaging 790 mg/L over the past 60 years (CVWD 2011; MSWD 2011). Artificial recharge with Colorado River water may increase TDS concentrations in the groundwater basin;

[4] The Coachella Canal transports Colorado River water from the All American Canal near the Mexico-U.S. border. The primary use of Coachella Canal water is for agricultural irrigation, although it is used to irrigate golf course and other landscape irrigation, recharge groundwater in the eastern Coachella Valley.

however, the potential for this to occur must be considered in conjunction with salt exportation and the fact that groundwater overdraft may increase TDS levels due to shifting pressure conditions, particularly in the eastern Coachella Valley (CVWD 2012).

Uranium and Perchlorate

Two constituents that have been detected in Colorado River water quality are uranium and ammonium perchlorate. Uranium concentrations below the MCL have been detected in the Colorado River water. Because of this constituent's presence, CVWD and other Valley agencies (MSWD, DWA, City of Indio, City of Coachella) will continue to monitor for radioactive materials in the Colorado River water used for recharge (CVWD 2012). Perchlorate found in Colorado River water imported to the Coachella Valley originated from the Kerr-McGee plant in Nevada on Las Vegas Wash upstream of Lake Mead. Colorado River water used in the past for irrigation and recharge in the eastern Coachella Valley led to perchlorate contamination of the groundwater. Because the source of perchlorate contamination in Colorado River water has been undergoing treatment since 1999, perchlorate is not expected to be a concern; however, continued monitoring of this constituent in both the Colorado River water and groundwater will continue (CVWD 2012; CVWD 2016a; CVWD et al. 2013; MSWD 2016).

Quagga

The non-native mollusk, *Dreissena bugensis*, also known as Quagga mussel, has been found in the Colorado River system. A Quagga mussel invasion could significantly affect the Coachella Valley's water quality, aquatic ecosystems, and water delivery systems. They have not yet been found in Coachella Canal. Quagga mussels can cause substantial economic damage associated with infestation of pipes, pumps or other components of water supply systems as well as environmental impacts removing food and nutrients from the water column and potentially collapsing the food web. Water quality may be affected by putrefactive decay of mussel flesh and methane gas production, and increased corrosion of pipelines from bacterial growth associated with the mussels (CVWD 2016a). CVWD has been proactively working to prevent the infestation and spread of Quagga mussels in the Coachella Canal and the irrigation system (CVWD 2016a).

Turbidity

Water turbidity and temperature vary greatly throughout the year in the Coachella Canal. The Canal water is typically clear in the winter when flow is low and murky in the summer as the water velocity increases enough to scour the silt from the bottom of the Canal. The principal chemical constituents concern in the Canal are TDS as described above, perchlorate (further described below), and selenium. Canal water is not suitable for domestic use without treatment (CWA 2016).

Local Surface Water

The surface water supplies currently used by DWA and those that may be diverted by the Agua Caliente Band of Cahuilla Indians are of high quality, with the concentration of TDS and nitrates both well within the MCLs.

Filtration

DWA's surface water supply complies with state and federal drinking water standards without any treatment, except disinfection where needed. One of the diversions for DWA was taken out of service in 2000 due to turbidity spikes in the source water, and it cannot be restored to potable service without filtration. DWA is currently exempted from filtration requirements due to DWA's control of the watershed,

the surface water's low turbidity, and DWA's continued monitoring of the supply[5]. In the event that filtration is required, DWA will determine whether to construct filtration facilities or use surface water supplies for groundwater recharge (DWA 2016).

Wastewater/Recycled Water

Wastewater may also impact local water quality through the leeching of septic effluent into the groundwater basin, as well as the addition of salts to the basin through irrigation with recycled water.

Wastewater

Some Coachella Valley residents utilize septic systems for wastewater treatment. Failing septic systems or a high density of septic systems have the potential to contaminate the local groundwater basin, a source of drinking water for the area.

Effluents from failing septic tanks have a high risk of polluting ground and surface water with nutrients, and human-borne pathogens. Nitrate, a water-soluble nutrient and major constituent of septic tank effluent, is a widespread ground water contaminant due largely to releases from septic tanks. Heavy pumping of water supply wells may draw down nitrate-polluted water in the unsaturated zone from septic tank discharges and contaminate ground water.

Septic Failure

As described above, if the amount of overdraft reduction is greater that the reduction in return flows, increased water levels could occur in the semi-perched aquifer. High groundwater levels in shallow perched or semi-perched aquifers can lead to waterlogging of soils which can lead to septic system failures. Septic flows are sources of nitrate and salt load to the groundwater basin, which could result in groundwater quality degradation (CVWD 2012; CVWD et al. 2013). MSWD, DWA, and CVWD are currently implementing programs to convert users from septic systems to sewer systems which would reduce the addition of nitrate to the groundwater basin (CVWD et al. 2013). The cost of addressing septic failures may disproportionately impact economically disadvantaged communities if such costs result in increased water rates or fees for low-income populations.

Recharge

Widespread use and density of septic tanks in some areas raises possible concerns about using artificial recharge to address overdraft. Changes in groundwater levels could result in septic effluent percolating from underground tanks. However, recharge in the area may reduce the nitrate levels. This issue is being studied (CVRWMG Planning Group meeting - May 19, 2010).

Recycled Water

The two potential sources of recycled water in the Coachella Valley are desalinated agricultural drainage water and treated municipal wastewater effluent. At present, golf courses and parks utilize treated municipal effluent for irrigation. Although recycled water tends to contain elevated nitrogen concentrations, studies

[5] Existing surface water treatment regulations are codified in Chapter 17 of Title 22 of the California Code of Regulations (CCR), Sections 64650 through 64666. Said regulations state that "Each supplier using an approved surface water source shall provide multibarrier treatment necessary to reliably protect users from the adverse health effects of microbiological contaminants …". "Multibarrier treatment" is defined as "a series of water treatment processes that provide for both removal and inactivation of waterborne pathogens" (CCR 2016).

at the University of California, Riverside have indicated that little nitrate moves past the root zone in well managed golf courses (RWQCB 2006).

The key concerns regarding the quality of recycled water for the IRWM Region are: potential percolation of recycled water with elevated nitrogen concentrations; timing of peak flows; regulatory conflicts associated with recycled water use; and high costs and large energy requirements.

Matching Quality to Use

Local sources need to be considered, including recycling and stormwater harvesting, in providing water supply to non-potable users. Large irrigators (agriculture and golf courses) may be supplied recycled water from municipal effluent, desalinated agricultural drainage water, or untreated Canal water.

Salinity and Nutrients

Currently, recycled water in the western Coachella Valley is either reused or percolated for disposal (percolated water enters the groundwater basin). Wastewater contains nutrients, and where water is recycled for irrigation uses, much of the nutrients are taken up by the plants and turf, thus reducing the need for fertilizer and contribution of nutrients into the groundwater basin. The State Water Resources Control Board (SWRCB) Recycled Water Use Policy requires every region in the state to develop a salt/nutrient management plan by 2014. The salt/nutrient management plans are intended for management of all sources contributing salt/nutrients, including recycled water, on a basin-wide or watershed-wide basis to ensure that water quality objectives are achieved (CVWD 2012; CVWD et al. 2013).

In addition to salts and nutrients, another water quality issue related to recycled water is emerging contaminants. The SWRCB Recycled Water Policy acknowledges the incomplete and evolving knowledge of emerging contaminants and provides for research and development of analytical methods to determine their potential for environmental and public health impacts. The impact this regulation would have on water management planning efforts in the Coachella Valley is not known at this time (CVWD 2012).

Regulatory Conflicts

Regulatory conflicts regarding recycled water use have arisen between the SWRCB and California Department of Public Health (CDPH). While the SWRCB promotes and encourages the use of recycled water and has statewide goals for increasing recycled water, CDPH permitting of recycled water systems can potentially restrict the use of this water source. These regulatory conflicts can make implementation of recycled water systems challenging and costly for local agencies.

Costs

Planning and implementing recycled water systems, including treatment plant upgrades to tertiary and distribution system expansions, involves high costs and large energy requirements. While the use of recycled water could represent an efficient water supply, at around $400 per AF, development of a non-potable distribution system could be costly (CVWD 2012). The CVRWMG Proposition 84 – Round 2 Implementation Grant application (March 2013) included a project that would connect three golf courses to the Mid-Valley Pipeline, which blends recycled water with other non-potable water for distribution.

Stormwater

Contamination of drinking water wells from agricultural and urban stormwater runoff is a concern for improperly constructed wells the Region (CVWD 2012). Improperly constructed wells can increase the potential for contamination from runoff and groundwater (CVWD 2012). Stormwater pollution can pose a serious health risk to people due to pesticides, bacteria, and chemicals being picked up as water drains from streets, parking lots, and lawns and enters the WRSC/CVSC untreated.

Coachella Valley Stormwater Channel

The CVSC is a continuation of the WRSC and runs from Washington Street to the Salton Sea. The CVSC is listed on the 303(d) List of 303(d) List of Water Quality Impaired Segments for DDT, Dieldrin, PCBs, E. Coli and toxaphene. The source of the contamination is unknown. With the exception of pathogens which apply to a 17 mile stretch area of the CVSC, the remaining constituents apply to a 2 mile stretch of the CVSC. Total Maximum Daily Loads (TMDLs) are being developed for all of these parameters (SWRCB 2010).

Salton Sea

Salton Sea is listed on the 303(d) List of Water Quality Impaired Segments for arsenic, chlorpyrifos, DDT, Enterococcus, nutrients, salinity, and selenium. The sources of nutrients are agricultural return flows and major industrial point source. The sources of salinity are out-of-state source, agricultural return flows, and unspecified point source. TMDLs are being developed for all of these parameters (SWRCB 2010).

3.1.6 Flood Management

CVWD and RCFCWCD's regional flood control systems consist of a series of debris basins, levees, and stormwater channels that convey floodwaters from the mountains and alluvial fans surrounding the Coachella Valley to the 49-mile WRSC/CVSC. Cities in the Coachella Valley (including the City of Indio/Indio Water Authority (IWA) and the City of Coachella/Coachella Water Authority (CWA)) provide local drainage control within their jurisdictions through a system of storm drains, retention basins, and dry wells; some of the flows from the local facilities contribute to flows within the stormwater channel. Implementation of BMPs, along with low annual rainfall and low urban density, have substantially reduced runoff from urban areas into the stormwater channel such that such flows are rare except in cases of major storm events (wet weather conditions). During dry weather conditions, local contributions from local facilities are rare due to implementation of BMPs.

The WRSC/CVSC and its tributary channels along with the implementation of stormwater BMPs protect the Coachella Valley cities from Palm Springs to Coachella from flooding. Areas that are not protected by regional flood control infrastructure and are located within identified flood hazard areas may be subject to alluvial-fan flash flooding from the surrounding mountain ranges (refer to **Figure 3-6**). In addition to areas located within identified (mapped) flood hazard areas, there are several areas of the Region that are not covered by flood hazard mapping.

Flood issues within the Region may be related to land use planning issues, because development is restricted within known flood hazard areas and therefore potentially impedes development. Stakeholders have expressed concerns that without additional flood control facilities, the need for affordable housing may drive allowances for housing to be built in flood-prone regions. **Figure 3-6** shows the areas recognized as at-risk for flooding by Federal and State flood mapping agencies.

Alluvial and Riverine Flooding

Much of the Coachella Valley is subject to alluvial and riverine flooding but has not been mapped by the Federal Emergency Management Agency (FEMA). Several at-risk areas lack flood control facilities and are vulnerable to such flooding. Those areas include:

- Areas adjacent to Mission Creek in the Desert Hot Springs area
- Sky Valley and Indio Hills
- Thousand Palms
- Portions of Indio north of Interstate 10
- The Oasis community extending from Avenue 66 to Avenue 86
- Areas adjacent to the CVSC south of Avenue 52
- Highway 111 between Palm Springs and Cathedral City
- Roadways that cross the Whitewater River

As mentioned in *Chapter 2 Region Description*, CVWD has undertaken a stormwater planning effort for North Cathedral City and Thousand Palms and has commissioned a series of studies in support of this effort. These studies have examined the existing conditions, identified geography and some man-made features as contributors to flood risks, and developed flood control alternatives. As with other flood control in the Region, these alternatives consist of levees, culverts, and channels designed to convey stormwater away from development and into the existing stormwater control channels, such as the WRSC/CVSC. The studies conducted for the Stormwater Master Plan effort also noted the importance of integrated, coordinated flood control planning, and the expensive nature of flood control projects (CVWD 2013d). In addition, the CVRWMG has updated this IRWM/SWR Plan to serve as a Stormwater Resource Plan (SWRP) functional equivalent.

Figure 3-6: Federal and State Mapped Flood Zones

3.1.7 Natural Resources

Key issues concerning the Region's water-related natural resources are addressed in this section.

Habitat Conservation

The Region may support populations of sensitive species such as migratory birds and endangered desert pupfish listed by California and the federal government. At the north end of the Salton Sea, the CVSC provides important sheltering, nesting, and feeding resources for migratory and resident waterfowl.

A Multiple Species Habitat Conservation Plan (MSHCP) was prepared for the entire Coachella Valley and surrounding mountains to address state and federal Endangered Species Act issues in the IRWM/SWR Plan Area. Conservation approaches, involving acquisition, biological monitoring, and adaptive management actions, have been identified in the MSHCP to achieve conservation of natural communities. Key water-related natural resource issues for the Coachella Valley include the need for permanent water availability for native flora and fauna; and preserving, restoring, and managing its water-related natural resources.

Water Availability

Changes in the water table or flows to the Salton Sea could affect water availability and success of conserving habitat for specific species covered by the MSHCP. Specifically, the MSHCP calls for establishing and providing a permanent water source for the following:

- Permanent habitat for the California black rail and Yuma clapper rail in the CVSC and Delta Conservation Area.
- Riparian habitat for covered riparian bird species in the CVSC and Delta Conservation Area.
- Desert pupfish habitat.
- Established mesquite on CVWD land in the East Indio Hills Conservation Area, if needed.

In addition, the MSHCP specifies the requirement to develop and implement a monitoring and adaptive management program for desert pupfish in the agricultural drains and flood control channels, and to restore and enhance habitat for the Coachella Valley round-tailed squirrel and mesquite on CVWD land in the East Indio Hills Conservation Area (CVAG 2007).

Salton Sea

Although the Salton Sea is not within the Region, local stakeholders acknowledge that permitted waste discharges and agricultural drains ultimately flow to the Salton Sea and can impact its wetlands resources.

The Salton Sea is the largest lake in California and has served as a recreational attraction, avian refuge and is a great source of biodiversity. The northern end of the Salton Sea has been described as a freshwater marsh that provides nesting areas, shelters, and feeding resources for migratory waterfowl, including federally listed endangered species. However, the Salton Sea has no natural outlet other than evaporation. Salinity has been steadily increasing due to the lack of discharge; water evaporation thus leaves behind high concentrations of salt.

To ensure continued restoration and protection of wildlife dependent on the Salton Sea ecosystem, three pieces of legislation (Senate Bill 277, Senate Bill 317, and Senate Bill 654) were signed by Governor

Schwarzenegger in September 2003, committing the state to a restoration path for the Salton Sea, establishing a Restoration Advisory Committee, and providing limited relief from California's Fully Protected Species Act. By October 2003, the QSA had been signed by local, state and federal agencies.

Wetlands

Coachella Valley drains southward to the Salton Sea, with flows containing treated wastewater effluent, rising groundwater and subsurface drain flows, and storm flows following major storm events. Where the CVSC and agricultural drains empty into the Salton Sea, there are mixed open water and freshwater cattail-reed marshes, and cottonwood-willow riparian stands that are supported by freshwater flows from the channels. The Torres-Martinez Tribe of Desert Cahuilla Indians (TMDCI) has developed an 85-acre wetland system on the shore of the Salton Sea west of the CVSC outflow. The wetland supports migratory and resident birds and other sensitive species that depend on increasingly scarce wetland habitat. DWR and California Department of Fish and Wildlife (CDFW) predict that declining inflows in future years will result in ecosystem collapse of the Salton Sea due to increasing salinity and other water quality issues. Certain species, including the pileworm, a primary component of the Salton Sea food web, and tilapia, the primary forage species for fish-eating birds, may be eliminated if salinity levels further increase. Loss of fish populations and invertebrates could in turn reduce bird populations (CVWD 2012). thus, preservation of the water sources and the quality of their water is critical to the survival and propagation of numerous wildlife species.

Groundwater Outflow

In addition to biological impacts, changes in the flows to the Sea and hence the freshwater-saltwater boundary could affect water quality of the Coachella Valley Groundwater Basin. Freshwater flows from the Coachella Valley aquifers towards the Salton Sea if groundwater levels are sufficiently high. Currently, groundwater levels adjacent to the Sea are below the level of the Sea, which may induce the movement of the denser saline Sea water into the fresher groundwater aquifers, and cause intrusion into the semi-perched aquifer if groundwater levels drop. This intruded water could eventually migrate vertically downward into the underlying upper and lower aquifers causing groundwater quality degradation. As groundwater levels in the basin declined, the rate of groundwater outflow to the Salton Sea has decreased (CVWD 2012).

3.1.8 Disadvantaged Communities

As described in *Chapter 4 Disadvantaged Communities*, stakeholders in the Region stated that previous maps of DACs did not fully capture the economic reality of the region. To address these stakeholder concerns, the DAC Outreach Program conducted extensive outreach to improve understanding of which areas in the Region qualify as DACs. These efforts and the resulting DAC maps are provided in *Chapter 4 Disadvantaged Communities*.

Based on meetings with DAC stakeholders and representatives, issues of concern for both eastern and western Coachella Valley residents related to DAC water supplies focus around the affordability and accessibility of a safe drinking water supply that is in compliance with state and federal requirements in order to meet the needs of both eastern and western Coachella Valley residents (see *Chapter 4 Disadvantaged Communities*). Education programs may be needed to inform residents of the safety or hazards of their groundwater supplies and other potential water supply and quality issues. Stakeholders have also noted that there may be conflicts between landowners and residents of DACs in instances when economic interests of landowners' conflict with the interests of onsite DAC residents; this issue specifically

pertains to the IRWM Program when such issues involve provision of adequate water and wastewater services.

Water and Sewer Infrastructure

DACs acknowledged there is a lack of basic water and wastewater infrastructure (onsite wastewater facilities are undersized or inadequate in low percolation areas) in DAC communities in the eastern Coachella Valley. Septic systems in the western Coachella Valley (including DACs) may be too densely located or otherwise improperly designed or failing, posing a contamination threat to the Desert Hot Springs Subbasin that is used for potable water supplies. Inadequate wastewater infrastructure is a public health hazard that can expose residents to untreated sewage. Untreated sewage may also leak into local ground or surface waters or spill near residential areas. DACs described a number of issues that indicate a problem with their wastewater infrastructure. For more detailed information on the water and wastewater infrastructure needs, refer to *Chapter 4 Disadvantaged Communities*.

Affordability

Affordability of water and wastewater is a key issue for DACs. As described in *Chapter 2 Region Description, Section 2.5.1 Groundwater Quality*, arsenic levels exceed MCL drinking water standards in localized areas in the eastern Coachella Valley. This issue is complicated by other issues such as affordable housing; for instance, there are many unpermitted mobile home parks in the eastern Coachella Valley that do not receive the required water system monitoring and provide housing to residents that cannot afford necessary treatment and testing procedures on their own. The CVRWMG has been working with local non-profits to address issues associated with water treatment. As described in detail in *Chapter 4 Disadvantaged Communities*, the CVRWMG developed an onsite water treatment program aimed at providing reverse osmosis systems to eastern Coachella Valley residents to treat for constituents such as arsenic in drinking water. The eastern Coachella Valley communities are located within the service area of CVWD; that agency's long-term water supply planning will address the desire for these communities to potentially connect to CVWD's drinking water and wastewater systems.

Nutrients in Hot Water

Poor groundwater quality in the hot water aquifer has the potential to have adverse economic impacts on the hot water resources in the western Coachella Valley's Desert Edge and Desert Hot Springs communities. Comprised of senior residents on fixed incomes, many of these small DACs desire to convert local septic systems to municipal sewer in order to ensure that water quality of the hot water resources is maintained. The County of Riverside and the CVRWMG are also involved in these issues. To date, two of the nine projects submitted for IRWM grant funding have been targeted towards providing sewer infrastructure to the Desert Hot Springs community.

Rural Access to Water

Available water supplies with adequate quality is limited in many rural communities, as wells above the perched aquifer, hot water basin wells, and agricultural wells are not suitable for drinking, and hauled water may be scarce or entirely inaccessible due to location of the communities. Many DACs are not within urban areas and as such municipal services hookup is difficult. An example of this is concentrated communities of farm workers in rural areas. Water quality issues are of particular concern in the eastern Coachella Valley, where many small mobile home parks are dependent on small private wells. These wells are not monitored and may be at risk of high levels of arsenic or potentially other pollutants, which have been found in

localized areas of the groundwater basin. Rural water treatment systems (point of source or other new technologies) and system maintenance training are needed in these rural/remote areas as discussed in *Chapter 4 Disadvantaged Communities.*

Flooding and Stormwater

Flooding and stormwater management improvements are needed to address flooding hazards in DAC areas, particularly in unincorporated communities that are not protected by regional flood control infrastructure. The expensive nature of flood control and stormwater management projects may impede their implementation in DACs. Further, onsite flooding has been noted as a concern in many DACs, particularly in the eastern Coachella Valley, whose soils are not conducive to rapid percolation. The resulting standing water also presents a public health hazard by creating conditions that foster disease vectors such as mosquitos.

3.1.9 Tribal Nations

Based on meetings with tribal communities, issues of concern include water and wastewater infrastructure, groundwater water quality, groundwater quantity, tribal water rights, and habitat protection/restoration, recycled water. Issues faced by tribal nations, namely the lack of adequate water and wastewater infrastructure and the high costs associated with improving it. There is a lack of basic water and wastewater infrastructure on some tribal lands in the eastern Coachella Valley. For instance, private sewer facilities are undersized or inadequate in low percolation areas.

The tribes share the Coachella Valley Groundwater Basin, using groundwater wells where municipal water is not available. Like other Coachella Valley users, the tribes are also concerned about regional water issues such as groundwater supply and quality (refer to *Chapter 5 Tribal Water Resources* for more information). Groundwater quality in some areas is unsuitable for certain uses. Testing at mobile home parks on tribal lands has found arsenic concentrations of 60-70 ppm compared to the 10 ppm MCL. Due to water quality issues, some tribes rely on bottled water for drinking water supply. The tribes have also expressed concern about increasing TDS concentrations due to recharge activities.

Resource management for sustainability is important to tribes. For example, in the WRSC on the Twenty-Nine Palms Reservation, flood control channel operations and maintenance activities could potentially impact native plant species or habitats that are culturally important to the tribes. There are also culturally-significant water resources on tribal lands. Tribes wish for these resources to be recognized in the IRWM/SWR Plan.

Tribal water rights are not included as an issue in the following sections, because this issue is not one that can be addressed through IRWM planning due to the lack of regulatory authority associated with the IRWM/SWR Plan (refer to *Chapter 5 Tribal Water Resources* for more information). However, the CVRWMG acknowledges tribal water issues that have been expressed by stakeholders and will continue to work through the IRWM process to improve and strengthen relationships with local tribes.

Water and Sewer Infrastructure

Tribal communities acknowledged there is a lack of basic water and wastewater infrastructure (private sewer facilities are undersized or inadequate in low percolation areas) on some tribal lands in the eastern Coachella Valley, and the issue of costs for these services is a concern for certain tribes.

Water Quality

Water quality is also a major concern, including salinity levels, elevated arsenic concentrations, and septic leaching issues and their impacts on the Coachella Valley's groundwater basins.

Water Quantity

Water quantity is a concern, especially as it relates to long-term groundwater overdraft.

Resource Management

Resource management is important to the tribes; for example, the TMTDCI is concerned about both the volume and quality of water flowing to the Salton Sea and their effects on the Salton Sea ecosystem restoration (CVRWMG Tribe meeting - May 20, 2010).

Expansion of Recycled Water

Further expansion of recycled water systems has provided water supplies to tribal development authorities for use on golf courses and other non-potable uses. In 2009, DWA executed a Reclaimed Water Service Agreement with the Agua Caliente Development Authority for Indian Canyons Golf Course (DWA 2009b).

3.1.10 Summary of Water Management Issues

As with other regions throughout the State, the Region is facing a variety of water-related issues that can be addressed through the IRWM/SWR planning process. Issues identified in this chapter range from the need to secure additional imported water supplies to the quantity and quality of local groundwater to lack of regional flood control.

Table 3-2 below provides a preliminary evaluation and summary of the top 12 categories of key water management issues in the Coachella Valley.

Table 3-2: Summary of Significant Water Management Issues in Coachella Valley

#	Category	Key Issues
1	Reliability of Water Supply	Regional population projections include continued growth, equating to water demand increases. Municipal demands are expected to increase at a faster rate than agricultural demands primarily due to population growth. Seasonal demands may not coincide with supply availability, so water supply reliability needs to coordinate supply availability with demand.
2	Groundwater Levels	Basin pumping exceeds total recharge. Pumping needs to be brought into balance through increased recharge, source substitution, and conservation. Failure to achieve this balance could lead to continued water level declines, water quality degradation, and land subsidence, which can result in loss of groundwater storage and impacts on infrastructure. If overdraft is reduced, and return flows are not reduced, areas over the shallow and semi-perched aquifers could experience soil waterlogging, with impacts to septic systems, utilities, agriculture, and other vegetation. Agricultural drain use will need to continue to maintain groundwater levels. Reliability of water supplies will affect the Region's ability to offset groundwater pumping with recharge efforts.
3	Imported Water Supply	SWP supplies are less reliable due to Statewide drought conditions and environmental constraints (which have led to reduced pumping) in the Delta. Colorado River supplies are vulnerable due to the prolonged Colorado River Basin drought.
4	Local Supply Opportunities	Local sources need to be considered, including recycling and stormwater harvesting. Large irrigators (agriculture and golf courses) may be supplied recycled water from municipal effluent, desalinated agricultural drainage water, or untreated Canal water. Challenges associated with cost-effectively linking recycled water supply to customers (i.e., strategic location of treatment facilities) must be met, possibly through inter-agency partnerships. Other challenges may include regulatory obstacles (ability to meet water quality standards), user resistance, physical limitations, and infrastructure limitations.

Table 3-2: Summary of Significant Water Management Issues in Coachella Valley

#	Category	Key Issues
5	Groundwater Quality	The salinity of Colorado River water is higher than the salinity of SWP Exchange water, recycled water, and some groundwater. Therefore, the use of Colorado River water for recharge and irrigation may result in the addition of salt to the basin if salts are not exported. In eastern Coachella Valley, agricultural drains help export salts from the basin through artesian flows. SWP Exchange water contains more total organic carbon and bromide than Colorado River water (both of which are precursors for creating disinfection byproducts). Long term recharge with SWP Exchange supplies could increase the concentration of these constituents. Although the Coachella Valley Groundwater Basin has had historically high water quality, regional groundwater quality is potentially at risk for increased salinity and nitrates. Individual domestic septic tanks and leach fields, fertilizer application, and wastewater percolation ponds are likely sources of natural organic contaminants. Several small private water systems in mobile home parks in eastern Coachella Valley have data that shows groundwater quality exceeds the MCLs for arsenic. Many private water systems supplying water to small mobile home parks in the eastern Coachella Valley do not test or report on drinking water quality; therefore, data on MCL exceedances are likely undercounted. Dependable arsenic removal systems and water quality testing are needed. The 10 µg/L MCL for chromium-6 that was issued in 2014 has since been invalidated. However, the SWRCB has been directed to conduct further studies to determine a more economically feasible standard and is expected to adopt a new MCL in the coming years. A new, lower MCL has the potential to be of substantial concern for the Region. The CVRWMG agencies are continuing to study chromium-6 reduction technologies in anticipation of a future MCL. Groundwater quality may also be impacted by failing septic systems, which may be too expensive for DACs to address, particularly in the eastern Coachella Valley.
6	Surface Water Quality	The last 17 miles of the CVSC, which conveys flows to the Salton Sea, is listed on the 303(d) List of Water Quality Impaired Segments for DDT, dieldrin, PCBs, pathogens, and toxaphene. The Salton Sea is listed on the 303(d) List for arsenic, chlorpyrifos, DDT, Enterococcus, nutrients, salinity, and selenium.
7	Local Environment	A permanent water source for permanent riparian habitat is needed for the California black rail, Yuma clapper rail, and riparian bird species in the CVSC and Delta Conservation Area. Changes in flow to the Sea may impact this habitat as a result of changes caused by falling groundwater levels that reduces flows entering the agricultural drain system, among others. Quagga mussels have been found in Colorado River, but not yet in the Coachella Valley and its water systems. Monitoring and preventative measures will continue, to prevent the impacts of Quagga mussel spread to the region.

Table 3-2: Summary of Significant Water Management Issues in Coachella Valley

#	Category	Key Issues
8	Flood Risks	Several areas lack flood control facilities and are vulnerable to devastating alluvial and riverine flooding. From Avenue 52 to Salton Sea, the CVSC lacks bank stabilization and is in a levee condition meaning that the estimated surface elevation of Standard Project Flood is higher than the elevation of adjacent properties. Coordination between land use planning and flood prevention planning could address some of the flood issues the Region faces.
9	Conjunctive Use	Potential increases in conjunctive use, to the degree that recharge and source substitution are increased more than net outflow, could lead to a solution to overdraft-related problems facing the basin. Key issues that must be addressed include completion of the SWP aqueduct extension and amount of this additional recharge water, its cost, its reliability, and its quality.
10	Water-Related Needs of Native Americans	There is a lack of basic water and wastewater infrastructure on some tribal lands in the eastern Coachella Valley. For instance, private sewer facilities are undersized or inadequate in low percolation areas. Tribes expressed the importance of sustainable resource management to protect the natural environment that is of cultural importance. Tribes expressed concerns over groundwater quality (salinity, arsenic, septic leaching), groundwater overdraft, resource management, and expansion of recycled water.
11	Water-Related Needs of Disadvantaged Communities	Many DACs are not within urban areas, making water supply difficult. One example is farm workers in rural areas. Rural water treatment systems (point of source or other new technologies) and training are needed in these rural/remote areas. The need for septic to sewer conversion or connection to municipal water systems is great, but DACs worry that jurisdictional issues or high costs may delay or prohibit project construction. Further, DACs have noted that conflicts between landowners and residents may arise with regard to provision of water and wastewater services if such provision requires additional expenditures on behalf of landowners.
12	Affordability of Water	Cost related to continued overdraft could include: reduced groundwater storage capacity; increased power consumption due to increased pumping lifts; repair and replacement of damaged infrastructure; and additional water treatment requirements due to decreases in water quality. Changing regulatory requirements and legal challenges could also potentially impact the affordability of water in the region. Planning and implementing a recycled water system, including treatment plant upgrades to tertiary and distribution system expansions, involves high costs and large energy requirements.

3.2 Climate Change Issues and Needs

DWR requires IRWM Plans to include an analysis of the effects of climate change on a Region and their water resources. The Region underwent a climate change analysis to consider the potential impacts and effects that have been projected, determine which of these impacts have the potential to affect the Region, identify vulnerabilities of regional water resources due to the potential projected impacts, and prioritize these vulnerabilities to more effectively manage for potential projected climate change effects.

3.2.1 Projected Impacts and Effects of Climate Change

Estimating the impacts of climate change at a regional level is challenging due to the coarse spatial scale of models that project climate change impacts of temperature and rainfall, and the long-time scale evaluated in many models (to the year 2100). Recently, state and regional entities have been working to downscale climate models to allow for climate change planning at a level that can be useful for planning efforts. These downscaled models provide outputs for the year 2050, and while this is still a longer timescale than is used in IRWM planning, it can still be useful for assessing climate change.

To incorporate climate change into water resources management, downscaled temperature and precipitation projections were inputted into other models, such as hydrologic models, to project impacts to water supply, water demand, snow pack, sea level rise, and wildfires. The results of these models have been summarized in a variety of studies and planning documents at the state, regional, and local levels. A number of these documents were reviewed to determine which best represented the impacts for the Region. These documents include:

- Preparing California for a Changing Climate (PPIC 2008)
- Reconciling Projections of Colorado River Streamflow, Southwest Hydrology (Hoerling et al. 2009)
- Response of Vegetation Distribution, Ecosystem Productivity, and Fire to Climate Change Scenarios for California (Lenihan, et al. 2008)
- *Climate change Adaptation Policy Guide* (CA Emergency Management Agency and CA Natural Resources Agency 2012)
- Climate Action Plans (Palm Springs, Rancho Mirage, Palm Desert, Coachella, Desert Hot Springs, La Quinta)

Climate change impacts and effects are based on very different climate change assumptions and analysis approaches. **Table 3-3** summarizes the impacts and effects of climate change on the Region by 2050 (unless otherwise indicated), which are typically based on an average of various climate change analyses. Generally, climate change is expected to increase temperature in the region. Rainfall projections vary, though there is little to no projected change in annual average rainfall. Water demand may be expected to increase due to higher irrigation needs caused by increased temperatures.

Imported water supply from the Colorado River Aqueduct may be impacted by expected decreased flows in the Colorado River from climate change. Up to a 20% decrease in Colorado River flow has been projected. (Hoerling, et al. 2009)

Climate changes may also slightly increase the frequency of wildfires. Increases in wildfires have the potential to increase sedimentation and turbidity of surface waters and increase flash flooding. (Lenihan, et al. 2008) Although lands that have been subject to stochastic events such as wildfire can be potentially be

susceptible to invasion by non-native vegetation, such as non-native grass and/or tamarisk, native species often re-sprout vigorously following a fire. If lands were previously dominated by native vegetation, these native species typically re-establish first and can outcompete non-native species that may be introduced afterwards. Where non-native species establish, there can be changes to the soil hydrology and chemistry.

Knowing the projected climate change impacts and effects in the Region, it is possible to determine which water resources in the Region are most vulnerable to climate change. The next sections identify and prioritize the vulnerabilities to help determine how to best apply management practices.

Table 3-3: Impacts and Effects of Climate Change on Region by 2050[1]

Impact	Effect
Temperature	Winter: Projected increases of 5°F to 9°F Summer: Projected increases of 6°F to 10°F
Rainfall	Little to no change in annual average rainfall
Supply	Colorado River flow decreases of 5% to 20%
Demand	Increases expected with higher temperatures, but not quantified
Wildfires	Same or slightly increased likelihood of wildfire

1. Information presented in this table is from the list of references provided on the preceding page

3.2.2 Identification of Climate Change Vulnerabilities

Understanding the potential impacts and effects that climate change is projected to have on the Region allows for an informed vulnerability assessment of the Region's water resources. A climate change vulnerability assessment helps assess water resource sensitivity to climate change, prioritize climate change vulnerabilities, and ultimately guides decisions as to which strategies and projects would most effectively adapt to and mitigate climate change. Key indicators of potential vulnerability include (DWR 2011):

- Currently observable climate change impacts (climate sensitivity)
- Presence of particularly climate sensitive features, such as specific habitats and flood control infrastructure (internal exposure)
- Resiliency of a region's resources (adaptive capacity)
- An analysis of the Region's vulnerabilities to climate change was developed and presented at the December 13, 2012 Planning Partners meeting by asking a series of questions suggested by DWR in its 2011 *Climate Change Handbook for Regional Water Planning.* **Table 3-4** summarizes the analysis, which includes:
- Vulnerability Question: Taken from Box 4-1 of DWR's *Climate Change Handbook*
- Answer: Determined according to the Region's current conditions and stakeholder feedback
- Justification: Why Y (yes) or N (no) was selected
- Vulnerability Issue: What is the climate change vulnerability issue that is identified by asking the question?

Following this analysis, the vulnerability issues were prioritized and vetted by the Region. The relative prioritization (low, medium, and high) are also indicated in **Table 3-4**.

Table 3-4: Climate Change Vulnerability Indicator Questions

Vulnerability	Y/N	Justification	Vulnerability Issue	Tier
Water Demand				
Are there major industries that require cooling/process water in your planning region?	Y	Vegetable packing plants require process water, but the Region as a whole is accustomed to large temperature shifts already.	Industrial demand would increase	Low
Are crops grown in your region climate-sensitive? Would shifts in daily heat patterns, such as how long heat lingers before night-time cooling, be prohibitive for some crops?	Y	Some fruits and vegetables grown in the area may be affected by changes in heat patterns.	Crop demand would increase	High
Is groundwater storage able to buffer drought?	Y	Groundwater storage provides an excellent buffer to drought events.	Lack of groundwater storage to buffer drought	Med
Is there additional ability to conserve further?	Y	Water conservation measures are in place throughout the Region.	Limited ability to conserve further	Med
Does water use vary by more than 50% seasonally in parts of your region?	Y	Agricultural, residential and golf course irrigation demand increases substantially in the summer.	Limited ability to meet summer demand	Med
Are some instream flow requirements in your region either currently insufficient to support aquatic life, or occasionally unmet?	N	Surface waters are ephemeral	Habitat demand would be impacted	N/A

Vulnerability	Y/N	Justification	Vulnerability Issue	Tier
Water Supply				
Does a portion of the water supply in your region come from snowmelt?	Y	Portion of supply from snowmelt in San Gorgonio and Santa Rosa mountains is low.	Decrease in local surface supply	Low
Does part of your region rely on water diverted from the Delta, imported from the Colorado River, or imported from other climate-sensitive systems outside your region?	Y	Region is dependent on Colorado River water.	Decrease in imported supply	High
Would your region have difficulty in storing carryover supply surpluses from year to year?	N	Groundwater basins have excess storage capacity, and facilities are in place to recharge.	Decrease in seasonal reliability	N/A
Does part of your region rely on aquifers with the potential to be affected with salt intrusion? Has salt intrusion been a problem in the past?	Y	Salt intrusion could potentially come from the Salton Sea and the eastern Coachella Valley perched aquifer.	Decrease in groundwater supply	Low
Has your region faced a drought in the past during which it failed to meet local water demands?	N	Did the Region implement drought management measures??	Sensitivity due to higher drought potential	N/A
Does your region have invasive species management issues at your facilities, along conveyance structures, or in habitat areas?	Y	Quagga mussels in Colorado River Aqueduct	Invasive can reduce supply available	Med
Water Quality				
Are increased wildfires a threat in your region? If so, does your region include reservoirs with fire-susceptible vegetation nearby which could pose a water quality concern from increased erosion?	Y	Climate change projections show little to no increase in wildfire in the Region, though fires in the surrounding mountains could increase flood damage and sedimentation.	Increased erosion and sedimentation	Low

Vulnerability	Y/N	Justification	Vulnerability Issue	Tier
Does part of your region rely on surface water bodies with current or recurrent water quality issues related to eutrophication, such as low dissolved oxygen or algal blooms? Are there other water quality constituents potentially exacerbated by climate change?	Y	Region relies on local surface waters for supply, but use of local surface water is low.	Poor water quality in surface waters	Low
Are seasonal low flows decreasing for some water bodies in your region? If so, are the reduced low flows limiting the water bodies' assimilative capacity?	N	Rivers in the area are dry except during storm events.	Increased constituent concentrations	N/A
Are there beneficial uses designated for some water bodies in your region that cannot always be met due to water quality issues?	N	Whitewater River has a recreational designation, but has never been closed to the public due to water quality issues.	Decrease in supply and/or recreational opportunity	N/A
Does part of your region currently observe water quality shifts during rain events that impact treatment facility operation?	N	No direct treatment of surface water	Increase in treatment needs and costs	N/A
Sea Level Rise				
Has coastal erosion already been observed in your region?	N	Not applicable	Not applicable	N/A
Are there coastal structures, such as levees or breakwaters, in your region?	N	Not applicable	Not applicable	N/A
Is there significant coastal infrastructure, such as residences, recreation, water and wastewater treatment, tourism, and transportation) at less than six feet above mean sea level in your region?	N	Not applicable	Not applicable	N/A
Is there land subsidence in the coastal areas of your region?	N	Not applicable	Not applicable	N/A
Are there climate-sensitive low-lying coastal habitats in your region?	N	Not applicable	Not applicable	N/A

Vulnerability	Y/N	Justification	Vulnerability Issue	Tier
Are there areas in your region that currently flood during extreme high tides or storm surges?	N	Not applicable	Not applicable	N/A
Do tidal gauges along the coastal parts of your region show an increase over the past several decades?	N	Not applicable	Not applicable	N/A
Flooding				
Does critical infrastructure in your region lie within the 200-year floodplain?	Y	Pump stations and pipelines, treatment plants could be impacted. Facilities currently in place are designed for SPF (250-year storm/flood), so increased flooding could be manageable.	Increases in inland flooding	High
Does aging critical flood protection infrastructure exist in your region?	Y	eastern Coachella Valley lacks adequate flood control		
Have flood control facilities (such as impoundment structures) been insufficient in the past?	Y	eastern Coachella Valley lacks adequate flood control		
Are wildfires a concern in parts of your region?	N	Not applicable	Increases in flash flooding	N/A
Does part of your region lie within the Sacramento-San Joaquin Drainage District?	N	Not applicable	Not applicable	N/A

Vulnerability	Y/N	Justification	Vulnerability Issue	Tier
Ecosystem and Habitat				
Does your region include inland or coastal aquatic habitats vulnerable to erosion and sedimentation issues?	Y	Considered low threat, because watershed erosion and sediment management are not key issues due to the engineered and maintained nature of waterways; however, pup fish exist in open agricultural drains.	Increased impacts to water dependent species	Low
Does your region include estuarine habitats which rely on seasonal freshwater flow patterns?	N	Not on coast.		
Do climate-sensitive fauna or flora populations live in your region?	Y	Desert pupfish living in agricultural drains and flood control channels		
Do estuaries, coastal dunes, wetlands, marshes, or exposed beaches exist in your region? If so, are coastal storms possible/frequent in your region?	N	Not applicable	Decrease in habitat protection against coastal storms	N/A
Do endangered or threatened species exist in your region? Are changes in species distribution already being observed in parts of your region?	Y	Wetlands near the Salton Sea are a part of the Coachella Valley MSHCP	Decrease in available necessary habitat	Low
Does the region rely on aquatic or water-dependent habitats for recreation or other economic activities?	N	Not applicable		
Are there areas of fragmented estuarine, aquatic, or wetland wildlife habitat within your region? Are there movement corridors for species to naturally migrate? Are there infrastructure projects planned that might preclude species movement?	Y	Wetlands near the Salton Sea are a part of the Coachella Valley MSHCP		

Vulnerability	Y/N	Justification	Vulnerability Issue	Tier
Does your region include one or more of the habitats described in the Endangered Species Coalition's Top 10 habitats vulnerable to climate change?	Y	The "Southwest Deserts" identified on the top 10 list includes the Sonoran Desert.		
Are there rivers in your region with quantified environmental flow requirements or known water quality/quantity stressors to aquatic life?	N	Not applicable	Decrease in environmental flows	N/A
Hydropower				
Is hydropower a source of electricity in your region?	Y	Hydropower is used in the Region as a source of electricity from the Imperial Irrigation District	Reduction in hydropower generation potential	Low
Are energy needs in your region expected to increase in the future? If so, are there future plans for hydropower generation facilities or conditions for hydropower generation in your region?	Y	Hydropower use is currently low and there are no concrete future plans to expand its use		Low

3.2.3 Vulnerability Analysis

Once the Region's climate change issues were identified, it was examined the adaptability of its water resources to climate change by prioritizing the vulnerability issues. In prioritizing the vulnerability issues, the Region identified those water resources that are of highest concern because of the significance of the impact of climate change, and from there identify the level of adaptation that will be needed.

Vulnerability Prioritization

The identified vulnerabilities were prioritized by considering the unique aspects of the Region. Prioritized vulnerabilities were vetted at the December 13, 2012 Planning Partners meeting and are shown in **Table 3--5**. Those vulnerability issues determined to be high priority are discussed further below.

Table 3-5: Prioritized Climate Change Vulnerability Issues

Priority Level	Category and Vulnerability Issue
High	• Water Demand: Crop water demand would increase • Water Supply: Decrease in imported supply • Flooding: Increases in inland flooding
Medium	• Water Demand: Lack of groundwater storage to buffer drought • Water Demand: Limited ability to conserve further • Water Demand: Limited ability to meet summer demand • Water Supply: Invasive species can reduce the supply available
Low	• Water Demand: Industrial demand would increase • Water Supply: Decrease in local surface supply • Water Supply: Decrease in groundwater supply • Water Quality: Increased erosion and sedimentation due to wildfires • Ecosystem and Habitat: Increased impacts to water dependent species • Decrease in available necessary habitat

Water Demand: Crop Water Demand Would Increase

Crop water demands are expected to increase with the increased temperatures caused by climate change. Given that agriculture is an important industry in the Region, an increase in crop irrigation demands caused by higher temperatures could impact the Region's economy through increased supply costs.

Water Supply: Decrease in Imported Supply

The water supply vulnerability issue of "decrease in imported supply" was identified by the Region as a high priority issue due to its dependency on imported water from the State Water Project and from the Colorado River. Given the Region's limited local water supplies, a decrease in imported supply with climate change could have a significant impact on the Region and is an issue that needs to be addressed.

According to water rights secured by a series of interstate compacts and federal legislation known as the *Law of the River,* Colorado River water supplies for the Coachella Valley are considered relatively secure even considering climate change vulnerabilities. However, according to the published State Water Project Delivery Reliability Reports, it is projected that the average reliability of SWP Table A deliveries (refer to *Chapter 2 Region Description* for more information) will be 60% of the Table A allotted value through 2029 after taking into consideration the potential effects of climate change (CVWD 2012). SWP deliveries are likely to impacted by variations in streamflow and runoff due to increased precipitation variation and decreases in snowpack due to increased temperature. Additionally, the Sacramento-San Joaquin River Delta, an important source of water for the SWP, will likely be impacted by sea level rise. Due to climate change and other factors, the 2010 Coachella Valley WMP assumes a long-term future average reliability of SWP supplies to be 50% of the Region's Table A allocations.

Flooding: Increases in Inland Flooding

Inland flooding was listed as a high priority for the Region, given that some of the Region's critical water infrastructure exists in the 200-year flood plain, and that the eastern Coachella Valley has experienced flooding in the past. More extreme storms due to climate change could cause an increase in inland flooding in the future.

3.3 Technical Analysis

*This section addresses with **Technical Analysis Standard** by documenting that the IRWM/SWR Plan is based on sound technical information, analyses, and methods.*

This section identifies the scientific and technical analysis used in development of the Coachella Valley IRWM/SWR Plan. Published documents such as regional plans, studies, and technical reports were reviewed, experts were consulted, and meetings with various interest groups were held to understand the short term and long-range needs of the Coachella Valley.

The documents referenced in *Chapter 2 Region Description*, *Chapter 3 Issues and Needs*, and *Chapter 12 References* of the Coachella Valley IRWM/SWR Plan were reviewed by the CVRWMG and the consulting team for the 2014 IRWM Plan Update (RMC and IPM, Inc). As a partnership of the five Coachella Valley water purveyors and one wastewater agency, the CVRWMG includes a wide variety of water professionals with different water-related backgrounds. The variety of backgrounds of the CVRWMG members and the consulting team allowed the information to be evaluated, analyzed, and interpreted from many different perspectives.

To better understand the water management needs of the Coachella Valley, the CVRWMG also held meetings with various interest groups, which are described in further detail in *Chapter 7 Stakeholder Involvement*:

- Coachella Valley Planning Partners are a group formed at the request of the CVRWMG consisting of representatives from public and non-profit entities that have an interest in water resources of the Region. The Planning Partners support the CVRWMG by reviewing and contributing to draft issues identification, goals and objectives, project prioritization criteria, long-term governance, implementation framework, and other IRWM/SWR Plan deliverables.
- Disadvantaged Community representatives within the Coachella Valley; DAC representatives were also invited to become Planning Partners. These meetings allowed the CVRWMG to understand

the critical water supply/water quality issues and needs of the DACs; and to identify potential solutions.

- The Coachella Valley's tribal governments, Bureau of Indian Affairs, and other tribal coordinating agencies were contacted to better understand their critical water resources issues and needs. The CVRWMG learned more about the major water-related concerns facing the tribes such that the long-term implementation of the IRWM/SWR Plan was responsive to those needs.
- Other Coachella Valley stakeholders were also identified. These meetings consisted of individual community members concerned with water resources, and representatives from various community groups that are concerned about water resources. The CVRWMG gathered input from the stakeholders about the community priorities and water related concerns.

The information gathered from the pertinent literature, water resource experts, and various interest groups was compiled and analyzed by the CVRWMG and the consulting team to determine the water management needs of the Coachella Valley. This work focused on identifying the key water resource goals and objectives of the IRWM/SWR Plan area (see *Chapter 6 Objectives*). The CVRWMG and its consulting team then used the information to prepare the Coachella Valley IRWM/SWR Plan.

3.3.1 Technical Information

The IRWM/SWR Plan goals were determined through review of pertinent literature, and consultation of various experts and interest groups. The CVRWMG undertook an extensive review of regional plans, studies, and technical reports to identify water management issues facing the Coachella Valley. Each section of the above *Section 3.1 Coachella Valley Issues and Needs* contains a summary of issues statement and pertinent literature used to derive the issues statement. This summary provides a snapshot of the studies, models, and other technical methodologies used to analyze the technical information and data sets. **Appendix VI-B** contains more detailed information regarding the technical analyses included in the plans and studies used to inform the development of the 2018 IRWM/SWR Plan. This appendix is consistent with Table 6 – Possible Studies/Data Sets provided in the *2016 IRWM Program Guidelines* by DWR.

Information was obtained from a broad range of sources, including: CVWD, CWA, DWA, MSWD, IWA, Coachella Valley Association of Governments (CVAG), DWR, Rural Community Assistance Corporation (RCAC), Poder Popular, RCFCWCD, County of Riverside, Colorado River Regional Water Quality Control Board (RWQCB), and the Desert Recreation District. Plans and reports included: water management plans, water quality reports, engineer's reports, habitat conservation plans, general plans, groundwater replenishment reports, master plans, feasibility studies, system assessments, stormwater management plans, and trails studies. *Chapter 12 References* provides a comprehensive list of the resources used to develop this IRWM/SWR Plan. Use of these technical resources is appropriate for development of the IRWM/SWR Plan, because it represents historic, current, and projected conditions for all service providers within the Coachella Valley.

4 Disadvantaged Communities

The Coachella Valley Water District (CVWD), representing the Coachella Valley Regional Water Management Group (CVRWMG), entered into a contract with the Department of Water Resources (DWR) to develop a Disadvantaged Community (DAC) Outreach Demonstration Program (DAC Outreach Program) for the Coachella Valley Integrated Regional Water Management (IRWM) Region.

The DAC Outreach Program was implemented from 2012 to 2013 and had the overall purpose of developing and implementing methods to improve DAC participation in the Coachella Valley IRWM process. In addition, the DAC Outreach Program scope included preparing this DAC chapter during the development of the 2014 IRWM Plan Update, which consolidates all the various areas of the IRWM planning that relate to DAC issues.

The DAC Outreach Program is included in **Volume II** of the IRWM/SWR Plan. **Volume II** also includes a series of appendices containing the results of the DAC Outreach Survey (see *Section 4.3.4 DAC Outreach Survey and Mapping* below), mapping efforts, DAC demonstration projects (described in *Section 4.4 DAC Outreach Survey and Mapping* below), and other materials developed in support of the DAC Outreach Program and to improve regional understanding of DACs in the Region. When referencing material or appendices contained in **Volume II** of the IRWM/SWR Plan, text will say "**Volume II**" and "**Appendix VII**," respectively. **Volume II** of the IRWM/SWR Plan is designed to act as a stand-alone DAC-focused resource for stakeholders.

4.1 History

The CVRWMG agencies have interacted and coordinated with economically disadvantaged communities for a long time. Some of the CVRWMG agencies such as Mission Springs Water District (MSWD) are almost completely within DAC areas. For others, significant areas within their boundaries are DAC areas but by no means do DACs cover their entire service area. No IRWM region in the State is completely without at least small areas that are DACs.

4.1.1 Past Outreach

Realization that the Coachella Valley IRWM Region (Region) contained many DACs and those DACs had substantial water-related needs along with other early efforts, such as CVWD's Highway 86 Domestic Water Transmission Main to extend water service to DACs in the eastern Coachella Valley (see below for more information), resulted in the request by the Region to DWR for DAC assistance in 2009.

In addition to IRWM-specific efforts, groups and organizations that work in and represent DACs were also working on solving problems in cooperation with the CVRWMG. The Desert Alliance for Community Empowerment (DACE) was working in a partnership with the United States Department of Agriculture, Rural

Development Division and the CVWD to secure $1.4 million in federal grant funds to build a three-quarter mile water pipeline to bring clean water to the residents of the 100 Palms Colonia Community located in Oasis, at the intersection of Old Highway 86 and Middleton Road (this project is known as the Highway 86 Domestic Water Transmission Main). This project reduced use of contaminated groundwater wells for drinking and bathing and reduced the use of expensive bottled water.

MSWD has worked to obtain state and federal grant funds to assist its residents with building and connecting to wastewater treatment facilities to protect groundwater and improve wastewater services in the community. Various assessment districts were developed to assist the DAC community served by MSWD. Assessment Districts 11 and 12 have received funding from the U.S. Army Corps of Engineers (USACE) and the U.S. Bureau of Reclamation (USBR) as well as the various rounds of IRWM Proposition 84 Implementation Grant funding to complement the funding provided by residents through the assessment districts.

Pre-Coachella Valley IRWM Outreach Efforts

Prior to formation of the CVRWMG in 2009, the DAC Planning Group was formed in 2007 to track the progress of DAC programs under Proposition 84. Numerous local and statewide DAC organizations were targeted during outreach for the Coachella Valley IRWM Program. Additionally, in the period just prior to and during the formation of the Coachella Valley IRWM Program, DAC groups in the Region were becoming more organized. Many factors caused these groups to organize to address pertinent issues affecting DACs such as economic development, roads, flooding, schools, and other issues affecting health and safety and quality of life. During this same time arsenic became regulated at lower levels, and problems with septic systems and water supply became more important to the DAC groups. Early efforts on the parts of the water supply agencies, Regional Water Quality Control Board (Regional Board), and Riverside County were successful; however, water-related needs of DACs proved to be substantial, requiring additional support. Community groups stepped in to assist on these issues, as they had also identified other problems facing their communities. Specifically, affordability of water and wastewater services and water quality of available water supplies were key issues for DACs.

In addition to DAC-related efforts that took place prior to formation of the CVRWMG, several other entities within the Region have continued to conduct DAC-related outreach in the Coachella Valley. For example, in 2013 a report was produced through the Building Healthy Communities initiative of the California Endowment entitled *Revealing the Invisible Coachella Valley.* This report documents environmental vulnerability in the eastern Coachella Valley and aims to provide a source of information to support investment in environmental protection, health promotion, and community well-being. This report is available online: https://humanecology.ucdavis.edu/sites/g/files/dgvnsk161/files/inline-files/limited_dist_14_revealing_invisible_coachella_valley.pdf

Efforts During Preparation of the 2010 Coachella Valley IRWM Plan

As IRWM-related planning efforts were initiated in 2010, DAC needs and issues were identified as special and different than other groups. To provide directed outreach to DACs and gain input on water-related DAC issues from DAC representatives, the DAC Issues Group was formed, and meetings began in May 2010 (refer to *Chapter 7 Stakeholder Involvement* for more information on the DAC Issues Group). Several DAC representatives were also invited to join the Planning Partners, representatives from local cities, County of Riverside, tribal governments, DAC representatives, and other local water management stakeholders that serve an advisory role for the development of the 2014 IRWM Plan and grant applications. A list of the

Planning Partners can be found in *Chapter 7 Stakeholder Involvement*. DAC Issues Group meetings continued to be held to assist the DACs in project development and 2014 IRWM Plan implementation. The CVRWMG was awarded a contract for services from DWR to explore and extend DAC outreach opportunities associated with IRWM planning. The additional DAC outreach efforts conducted under the DWR contract form the basis for the information provided in this chapter of the IRWM/SWR Plan.

4.1.2 Previously Characterized Issues and Needs

*This section complies with the **Education, Outreach, Public Participation** requirements for the SWRP by describing efforts to identify and address environmental injustice issues within the watershed.*

During the development of the 2010 IRWM Plan, water related issues concerning DACs in the Coachella Valley were identified and are detailed below.

1) ***Affordability***: Addressing DAC water-related issues without increasing rates
2) ***Connection to the Sewer System***: The need for septic to sewer conversion is great, but jurisdictional issues and high costs may delay or prohibit construction
3) ***Drinking Water Quality***: Other groundwater sources, such as wells above the perched aquifer, hot water basin wells, and agricultural wells, are not suitable for drinking. In places where local groundwater wells supply water that does not meet drinking water standards, other water sources such as hauled water can be scarce or entirely inaccessible
4) ***Water Supply***: Many DACs are not within urban areas, making water supply even more difficult. One example is concentrated communities of farm workers in rural areas in the eastern Coachella Valley. Rural water treatments systems (generally onsite point of source or other new technologies) and training are needed in these rural/remote areas to ensure residents have a reliable supply of water that meets drinking water standards
5) ***Flooding and Stormwater***: Flooding and stormwater management improvements are needed to address flooding hazards in DAC areas, particularly in portions of the eastern Coachella Valley that are not protected by regional flood control infrastructure and unincorporated communities that do not receive stormwater services from an incorporated city

4.1.3 Previously Identified Projects

*This section complies with the **Education, Outreach, Public Participation** requirements for the SWRP by describing efforts to identify and address environmental injustice issues within the watershed.*

Preliminary work with DAC groups in the Region prior to development of the Coachella Valley IRWM Plan resulted in the projects that would benefit DACs. Each of these projects, which are summarized below, has multiple partners and benefits, but the primary beneficiaries are DACs.

1) ***Bacterial Indicators Total Maximum Daily Load (TMDL)***: Implementing projects to ensure that discharges do not contribute to the load of bacterial indicators is required to ensure compliance with the Regional Board TMDL for bacterial indicators. These projects will include implementation of best management practices (BMPs) and solutions to prevent dry weather runoff flows from entering regional facilities such as the Coachella Valley Stormwater Channel (CVSC). Along with

complying with the TMDL for bacterial indicators, the project will result in improvements to water quality by specific DACs who do not have access to other water supplies.

2) ***Integrated Resource Development and Protection Project***: Septic to sewer conversion that provides alternatives to failing septic tanks and generates additional wastewater to water reclamation facilities, thereby providing additional water that will be beneficially reused and protect groundwater supplies.
3) ***Water-Related Health and Safety Improvement-Riverside County***: This project would work with existing groups to provide improvements to water and sewer systems as the County closes hazardous housing areas.
4) ***Integrated Regional Groundwater Quality Protection Project***: Septic to sewer conversion that complies with a State mandate to eliminate septic tanks, generates recycled water, reduces dependence on imported water, and protects regional groundwater supplies.
5) ***Eagle Canyon Dam Integrated Flood Control and Regional Watershed Project***: Addresses safety, flood control and economic development issues for the DACs in Cathedral City, Palm Springs, Riverside County, and Tribal lands. This is the priority project for Riverside County Flood Control and Water Conservation District-Zone 6.
6) ***DAC Conservation and Water Testing Pilot Project***: DACs frequently pay significant costs for water that is wasted due to leaks they cannot afford to fix, or do not drink tap water due to concerns about water quality. This project would utilize existing non-profits and agencies to test and help significantly DAC members make repairs, conserve and use the water they pay for.

In 2010, the DAC Planning Group that was formed prior to the IRWM effort identified some specific projects or areas of effort critical for DACs in the Region. While the projects vary over time, they consistently work to solve similar issues that are relevant today. The projects and project concepts developed by the DAC Planning Group in 2010 included:

1) Septic conversion to combine advanced water treatment and sewer systems to impart additional water supply benefits from beneficial reuse of wastewater, with the focus on low income and significant DACs in both urban and rural areas
2) Basic provision of water supply meeting water quality regulations, and wastewater services supporting basic quality of life and health and safety needs
3) Conservation of water resources including stormwater to minimize reliance on imported water
4) Accurate DAC stakeholder profiles and accurate data
5) Floodplain and alluvial fan mapping and planning to identify funding for stormwater management facilities in DAC areas
6) Water reuse and recycling and related technology for DAC areas
7) Policy coordination with cities, tribes, county and water agencies to ensure effectiveness
8) Affordable housing, community development, and economic development

4.1.4 Funded Projects in Proposition 84-Round 1 Implementation Grant

In response to projects and project concepts raised by the DAC Planning Group and recognition on behalf of the Planning Partners and the CVRWMG regarding the need for projects to address DAC issues, two projects that directly benefitted DACs were included in the Region's Proposition 84-Round 1 Implementation Grant application. The two DAC projects, the Short-Term Arsenic Treatment (STAT) Project and a septic-to-sewer conversion project, were funded by the Proposition 84 - Round 1 Implementation Grant. Those projects are described in detail below.

Example of a reverse osmosis system installed in the San Antonio del Desierto Mobile Home Park by Pueblo Unido Community Development Corporation for the STAT Project.

Short-Term Arsenic Treatment Project

The STAT Project was based on a pilot program implemented at a mobile home park (San Antonio del Desierto) by Pueblo Unido Community Development Corporation (Pueblo Unido CDC), a local non-profit organization that provides support to DACs in the eastern Coachella Valley. Pueblo Unido CDC developed engineering design for an onsite water treatment system using reverse osmosis at San Antonio del Desierto that will be replicated at new sites in the eastern Coachella Valley. The STAT Project used cost-effective and reliable technology to remove naturally-occurring arsenic and provide new short-term alternatives to improve the quality of drinking water for DACs without access to public water systems. Additionally, the program included training and education components that consist of helping farm worker families understand proper water quality monitoring and operation of decentralized wastewater systems. This project, which was completed by Pueblo Unido CDC in December 2016, addressed water quality issues in DACs located in the eastern Coachella Valley. This project received $564,000 in IRWM grant funding, and directly helped to increase the affordability of water for DACs by providing safe drinking water at a low cost and negating the need for DACs to purchase bottled water.

Groundwater Quality Protection Program – Desert Hot Springs

This project extended MSWD's existing municipal sewer system to Sub-area D1 in Assessment District 12, thus eliminating the need for on-site septic systems that that overlie the Desert Hot Springs Subbasin. This project eliminated 181 septic tanks that threaten contamination of groundwater supply, and protected hot mineral water which is the economic basis of the Desert Hot Springs community's (a DAC) spa industry. The project, therefore protected residents of a DAC from significant costs that would result if treatment of the potable water supply were necessary due to contamination. $1.025 million in grant funding was provided to MSWD. The project was completed in February 2017.

4.2 DAC Outreach Program Activities

*This section complies with the **Organization, Coordination, Collaboration** requirements for the SWRP by highlighting the community participation provided for in IRWM/SWR Plan development. This section also complies with the **Education, Outreach, Public Participation** requirements by describing strategies to engage DACs and efforts to address environmental issues within the watershed.*

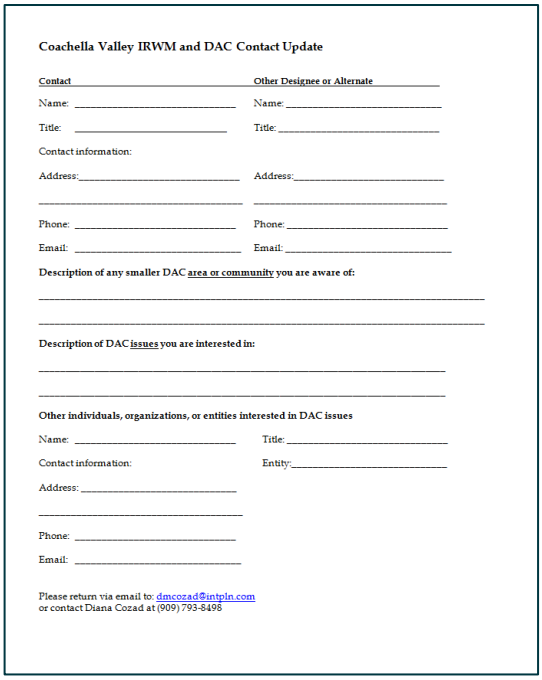
This section describes the DAC Outreach Program and methods used to broaden the participation of DACs in the IRWM/SWR Planning process that were implemented through the DAC Outreach Program. Methods used include: development of stakeholder profiles, outreach via the established DAC Issues Group, DAC Workshops, and other general outreach mechanisms.

4.2.1 DAC Stakeholder Profiles

Using an existing list of 29 Region DAC stakeholders, an initial email was sent to introduce the Coachella Valley DAC Outreach Program and to reach out to those with water-related issues or needs. A Coachella Valley IRWM Contact Update Form was provided to acquire updated or new contact information, and follow-up emails, calls and meetings were scheduled to address issues provided by stakeholders. Information about the DAC Outreach Program was also sent to any new leads provided by the existing stakeholders.

A letter was also sent to the 71 Planning Partners requesting their assistance in reaching out to those impacted by or interested in water issues in DAC area or any providing any leads for groups or persons interested in participating in the DAC Outreach Program. Follow-up from the leads provided by the Planning Partners included phone calls, emails, and/or letters to discuss possible interest in participating in the IRWM planning process or information that the leads had regarding water issues.

Figure 4-1: DAC Outreach Materials: Contact Update Form and Letter



Coachella Valley IRWM and DAC Contact Update

Contact / Other Designee or Alternate

Name: / Name:

Title: / Title:

Contact information:

Address: / Address:

Phone: / Phone:

Email: / Email:

Description of any smaller DAC area or community you are aware of:

Description of DAC issues you are interested in:

Other individuals, organizations, or entities interested in DAC issues

Name: / Title:

Contact information: / Entity:

Address:

Phone:

Email:

Please return via email to: dmcozad@intpln.com
or contact Diana Cozad at (909) 793-8498

CVRWMG

July 17, 2012

Subject: Coachella Valley Disadvantaged Community Outreach Program

Dear Project Planning Partner:

Please help us reach out to those with water-related needs or issues in Coachella Valley Disadvantaged Communities (DAC). Let us know who you think is impacted by or interested in water issues in DACs by filling out the form on the next page.

The Coachella Valley Water District (CVWD), representing the Coachella Valley Regional Water Management Group (CVRWMG), has entered into a contract with the Department of Water Resources (DWR) to develop a Disadvantaged Community (DAC) Outreach Demonstration Program (DAC Program) for the Coachella Valley Integrated Regional Water Management Region (Region). CVWD has contracted with RMC Water and Environment, Inc. and Integrated Planning and Management Inc. to perform outreach and work with DAC groups related to water in the Coachella Valley.

The DAC Program will develop and implement methods to improve DAC participation in the IRWM Plan. The DAC Program will coordinate with and complement the update of the CVIRWM Plan. The data and experience gained from the DAC Program will assist DWR in developing a model DAC Program for other similar areas.

The DAC Program methods will include expanded outreach efforts, the development and use of spatial data to characterize smaller DAC areas and flood control needs within DAC areas, a needs assessment for DACs in the Region, identification of existing or proposed projects intended to benefit DACs, development of engineering and project management plans for priority DAC projects, and work items to ensure that information and outcomes from the DAC Program are included within the Coachella Valley IRWM Plan Update.

Outreach to the Disadvantaged Communities is critical to the success of this program. To summarize, we would like your assistance in reaching out to those who you know may have water-related needs or issues. This could be an individual whom you think may have information to follow-up on or an organization that is dealing with DAC issues. Please complete the attached form and e-mail it to dmcozad@intpln.com or contact Diana Cozad at (909) 793-8498 with any leads you can provide.

The CVRWMG appreciates the support are providing and we look forward to working with you in the future.

Sincerely,

Daniel B. Cozad
Principal

Integrated Planning and Management
[illegible]
(909) 793-8498 www.intpln.com

Attachment: Coachella Valley IRWM and DAC Contact Update form

In addition, after researching other organizations that work with DAC members in the Region, a list of 28 additional leads was compiled and letters were sent to these organizations to see if they were interested in participating or if they knew of any water-related issues or other groups. Further follow-up meetings and contact were made with any new leads provided.

All new interested parties were added to the stakeholder lists. Examples of materials are shown in **Figure 4-1**. The results of all the leads, contacts and outreach were captured in a comprehensive database that is described further below in *Section 4.2.4 Outreach Mechanisms*. DAC stakeholders were also asked if they would like to participate in the DAC mapping process (described in *Section 4.3 Initial DAC Characterization and Feedback* below) and were provided a Non-Profit DAC Characterization Participation Form to provide information about water-related issues.

Because very limited information was provided by the DAC participants and potential stakeholders in response to requests and meetings, it was determined that geographic information systems (GIS)/demographic data would be used to characterize DAC focus areas. In total, 14 DAC focus areas were defined for the Region; those focus areas are described in *Section 4.3.2 Census Re-evaluation and Initial Research*.

4.2.2 DAC Issues Group

At the initiation of the IRWM planning efforts in 2009, DAC needs and issues were identified as special and different from other groups and the DAC Issues Group was formed and began meeting in May 2010 to address needs and issues. As part of the DAC Outreach Program in 2012 and 2013, the DAC Issues Group were invited to participate in the process of identifying current needs and issues, requested leads of other individuals and/or organizations that may have water-related needs or want to participate in the program.

They were also invited to DAC workshops associated with the DAC Outreach effort and were included in all stakeholder outreach and email notifications and encouraged to participate. The list of members who participated in the DAC Issues Group during the 2014 IRWM Plan Update is presented in **Table 4-1**.

In late 2012, the Coachella Valley IRWM Program conducted directed technical outreach to DACs via the Issues Groups and Planning Partners during the project solicitation process for Proposition 84-Round 2 Implementation Grant funding. This outreach involved an October 11, 2012 workshop to provide technical assistance to DACs, DAC representatives, and any other interested IRWM stakeholders when submitting their projects into the online project database (refer to *Chapter 9 Project Evaluation and Prioritization* for more information).

The DAC Issues Group was also invited to participate in a directed evaluation of groundwater quality within disadvantaged communities as part of the 2014 IRWM Plan Update. The *DAC Groundwater Quality Evaluation* is discussed in detail in *Chapter 10 Agency Coordination.* The evaluation included meeting presentations that took place in September 2012, December 2012, June 2013, and September 2013 and were co-hosted with the DAC Workshops.

Table 4-1: DAC Issues Group Participants

Organization
California Rural Legal Assistance, Inc.
Clean Water Action
Community Water Center
Desert Alliance for Community Empowerment
Desert Edge Community Council
El Sol Neighborhood Educational Center
Environmental Justice Coalition for Water
Loma Linda University
Pueblo Unido CDC
Poder Popular
Representative from Assembly Member Perez

4.2.3 DAC Workshops

Several workshops were planned and held for outreach and communication with the DAC participants and residents. These workshops were well-attended and while some new organizations attended the workshops, most of the DAC groups had previously participated in DAC efforts or in efforts associated with the DAC Outreach Program. Two community DAC Workshops were held (one in the eastern Coachella Valley and one in the western Coachella Valley) to encourage participation among members (residents) of economically disadvantaged communities; most of the attendees at these workshops had not previously participated in efforts associated with the Coachella Valley IRWM Program. Each of the workshops is summarized on the following page.

Community members identifying areas of concern at a DAC Workshop in June 2013.

Workshop 1

The first DAC Workshop was held on September 13, 2012 and was co-hosted with the September 2012 Planning Partners meeting for increased attendance. Agenda objectives included an overview of IRWM Planning in general and Coachella Valley IRWM Planning efforts, announcement of the initiation of the DAC Outreach Program, providing an overview of planning and outreach efforts completed to date, discussing next steps, and sharing and capturing other relevant thoughts and ideas for future discussion of DAC outreach and DAC issues in the Region. There were approximately 25 attendees at this workshop. The primary purpose of this workshop was to announce the DAC Outreach effort to stakeholders and let stakeholders know that part of the DAC Outreach Program would involve contracting with local non-profit organizations. The outreach forms discussed above and included in **Figure 4-1** were distributed during this workshop, which was used as an additional venue to gather contacts and leads that would be interested in participating in the DAC Outreach Program.

Workshop 2

DAC Workshops were well attended, and presented bilingually.

The second DAC Workshop was held on December 13, 2012 and was co-hosted with the December 2012 Planning Partners meeting for increased attendance. Agenda objectives included updating participants on the Coachella Valley DAC Outreach Program including a discussion of the updated characterization maps (refer to *Section 4.3 Initial DAC Characterization and Feedback* below for more information), an overview of the non-profit contracting for the DAC Outreach Program, and an update on groundwater quality and integrated flood management studies that were being conducted through the IRWM Plan but had specific DAC components. There were approximately 25 attendees at this workshop.

Workshops 3 and 4

Community DAC Water Workshops were held in both the eastern and western Coachella Valley. The eastern Coachella Valley workshop was held on June 18, 2013 in Thermal and the western Coachella Valley workshop was held June 20, 2013 in Desert Hot Springs. The objective of each workshop was to discuss DAC issues and needs, discuss the project development process and project concepts (refer to *Section 4.4 DAC Projects Developed Through Outreach Efforts*), and receive additional information about the specific location and nature of DAC issues. Flyers were created in both English and Spanish and were sent out via email to approximately 210 stakeholders on the DAC email list and delivered by hand to various mobile home parks. Approximately 68 people attended the eastern Coachella Valley workshop and 18 attended the western Coachella Valley workshop.

Workshop 5

The fifth and final DAC Workshop was held on November 6, 2013 and co-hosted with a public workshop held on the Public Draft of the 2014 IRWM Plan Update. The purpose of this final workshop was to present the findings of directed DAC surveys and mapping (refer to *Section 4.3 Initial DAC Characterization and Feedback*), present information about the projects that were developed through the DAC Outreach Program (refer to *Section 4.4 DAC Projects Developed Through Outreach Efforts*) and receive input about the findings reached in the DAC Outreach Program Final Report.

4.2.4 Outreach Mechanisms

This section complies with the ***Education, Outreach, Public Participation*** *for the SWRP requirements by describing mechanisms used to facilitate public participation during IRWM/SWR Plan development.*

In addition to the variety of in-person outreach that was conducted through one-on-one meetings and workshops, additional work was completed to develop and maintain data management and outreach processes designed to disseminate water management-related information to the Region's DAC stakeholders.

Several outreach mechanisms were developed to provide on-going communication to the Region's DAC stakeholders. Those outreach mechanisms are summarized below.

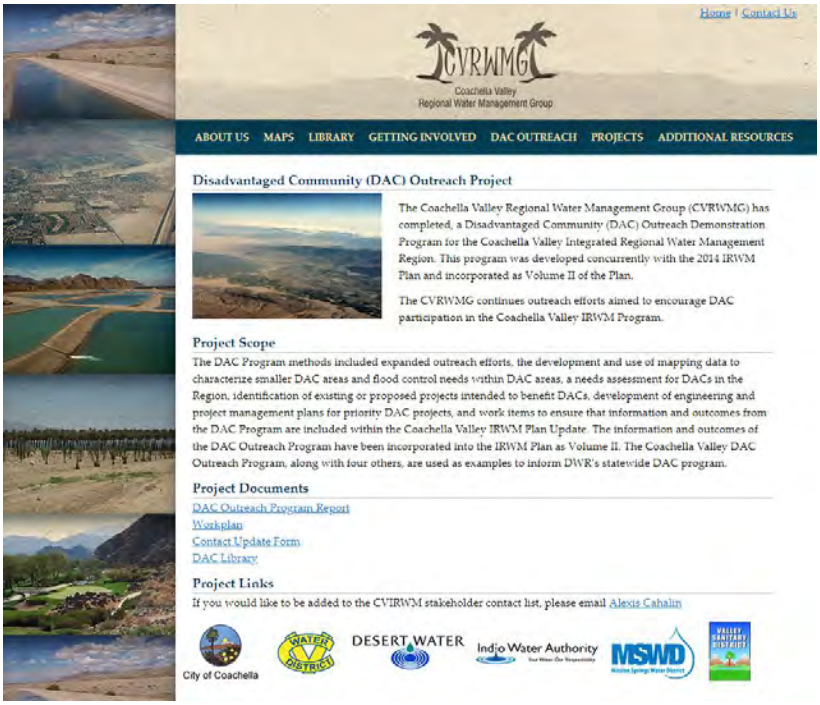
Project Selection Outreach Meetings

During the project solicitation process for each round of IRWM grant funding, the CVRWMG holds an open house for DAC representatives and other interested stakeholders to provide technical support for submitting projects to the online project database (refer to *Chapter 9 Project Evaluation and Prioritization* for more information). The open houses are advertised widely across the entire stakeholder list for the IRWM Program but are also specifically announced to DAC representatives to encourage submittal of projects that will directly benefit DACs and to also ensure that DAC organizations are aware that there is support available for the project submittal process.

Coachella Valley IRWM Website

A page for the DAC Outreach Program within the existing Coachella Valley IRWM Program website (www.cvrwmg.org), as shown in **Figure 4-2**, was developed and is updated regularly. The site provided both general and technical information, benefitting the public, project team, and DWR. Information that was available on the website was also provided as a handout at the workshops and meetings to ensure those without computers would have access to the same information.

Figure 4-2: Screenshot of the DAC Outreach Project portion of the IRWM Website



Notices and Flyers

Notices and flyers were created in English and Spanish for workshops and were distributed to the various stakeholder lists as shown in **Figure 4-3**. Flyers were posted at various organizations by stakeholders and were used to communicate the goals and background of the DAC Outreach Program, upcoming meetings and workshops, how interested parties could get involved, where more information is available and contact information.

Figure 4-3: Bilingual Flyers Distributed for Workshops

Join Us!

Tell us what you think!

The California Department of Water Resources wants your input!

You are invited to:

A Community Water Workshop

Workshops will discuss:

Disadvantaged Communities' needs including septic systems, sewer systems, water quality, and flood control issues

This is an opportunity to have your voice heard.
Provide comments or have your questions answered about water and wastewater issues in the Coachella Valley

The workshop will be held in both the East and the West Coachella Valley
June 20th and June 18th

Western Coachella Valley

5pm-7pm – June 20th
DHS Family Resource Center
(in the Kmart shopping center)

14201 Palm Drive Suite 108
Desert Hot Springs, CA 92240

Call (760) 567-0706 or
email Susie: susiedelbrocelso@gmail.com

Eastern Coachella Valley

5pm-7pm – June 18th
San Jose & Bea Main Community and Learning Center

69495 Pierce Blvd, Thermal, CA

Call PUCDC: (760) 777-7550 or
email Rodolfo: rpinon@pucdc.org

The Coachella Valley Regional Management Group (CVRWMG) has entered into a contract with the California Department of Water Resources (DWR) to develop a Disadvantaged Community (DAC) Outreach Demonstration Program (DAC Program) for the Coachella Valley Integrated Regional Water Management Region (Region). The CVRWMG has contracted with RMC and Integrated Planning and Management Inc. to perform outreach and work with DAC groups related to water in the Coachella Valley.

The DAC Program will develop and implement methods to improve DAC participation in the Integrated Regional Water Management (IRWM) Plan. The DAC Program will coordinate with and complement the update of the Coachella Valley IRWM Plan. The data and experience gained from the DAC Program will assist DWR in developing a model DAC Program for other similar areas in California. *For more information on the Coachella Valley IRWM Program and the DAC Program, please visit our website at* http://cvrwmg.org/dac.php

¡Acompáñanos!

¡Dinos lo que piensas!

¡El Departamento de Recursos Hídricos de California quiere saber tu opinión!

Estás invitado a:

Un taller comunitario sobre el agua

Los talleres tratarán sobre:

Las necesidades de las comunidades en desventaja, incluyendo los sistemas sépticos, los sistemas de alcantarillas, la calidad del agua, y temas de prevención de inundaciones.

Esta es una oportunidad para que te escuchen.
Para proporcionar tus comentarios o para que te contesten tus preguntas sobre temas de agua y aguas residuales en el Valle de Coachella.

El taller se llevará acabo en ambos el Este y el Oeste del Valle de Coachella.
Junio 20 y Junio 18

Oeste del Valle de Coachella

5pm-7pm - junio 20
Centro de Recursos Familiares de DHS
(en el centro comercial de Kmart)

14201 Palm Drive Suite 108
Desert Hot Springs, CA 92240

Llame al (760) 567-0706 o escriba un correo electrónico a Susie a:
susiedelbrocelso@gmail.com

Este del Valle de Coachella

5pm-7pm – junio 18
Centro Comunitario y de Aprendizaje San Jose & Bea Main

69495 Pierce Blvd, Thermal, CA

Llame a PUCDC: (760) 777-7550 o escriba un correo electrónico a Rodolfo a:
rpinon@pucdc.org

Del grupo Coachella Valley Regional Water Management Group (CVRWMG), firmó un contrato con el departamento del estado *California Department of Water Resources (DWR)* para desarrollar un programa de demostración de alcance a la comunidad en comunidades en desventaja o *Disadvantaged Community (DAC) Outreach Demonstration Program (DAC Program)* para el grupo regional administrativo llamado el *Coachella Valley Integrated Regional Water Management Region (Region).* Del grupo CVRWMG firmó un contrato con RMC y con *Integrated Planning and Management Inc.* para llevar a cabo el alcance a la comunidad y para trabajar con grupos de comunidades en desventaja (DAC) relacionados con el agua en el Valle de Coachella.

El Programa DAC va a desarrollar e implementar métodos para mejorar la participación de las DAC en el Plan *Integrated Regional Water Management (IRWM).* El Programa DAC va a coordinar con, y a complementar la actualización del Plan Coachella Valley IRWM. Los datos y la experiencia que se adquieran del Programa DAC son para asistir a DWR a desarrollar un modelo del Programa DAC para otras áreas similares en California. **Para más información sobre el Programa Coachella Valley IRWM y el Programa DAC, por favor visita nuestro sitio en la Red al** http://cvrwmg.org/dac.php

Data Management System

To efficiently track leads, DAC contact information, meetings, e-mails and other reportable information, a data management system was implemented. Using the data management system enabled the team to send email campaigns to all members of a specific group, for instance DACs, or to the whole group, CVRWMG, Planning Partners and DACs. Contacts and leads were updated on a regular basis. Email campaigns were used to send out information including but not limited to announcement of upcoming DAC workshops, reminders of workshops and agendas, call for projects for Proposition 84-Round 2, input on DAC maps, Community Water Workshops and thank you letters.

Although initially conceptualized as potential outreach mechanisms, after discussions with DAC members, newsletters and press releases were not considered to be useful as outreach mechanisms in communities in the Coachella Valley.

Door Hangers

Door hangers were used to invite community members to participate in the Community Water Workshops, as shown in **Figure 4-4**

Figure 4-4: Bilingual Door Hangers Distributed During Survey Process

4.2.5 Coordination with Community Leaders

As part of the DAC Outreach Program, numerous meetings were held with agencies and other organizations within the Region, including the Coachella Valley IRWM Planning Partners (refer to *Chapter 7 Stakeholder Involvement* for information about the Planning Partners) Riverside County Public Health, Riverside County Environmental Health, Riverside County Code Enforcement, and the Colorado River Basin Regional Board. Early meetings were intended to gather the role and information and contacts that each agency maintained for DAC Outreach. Later meetings catalogued issues, needs, concerns and opportunities where IRWM/SWR planning may provide some support for the community. All Riverside County Departments were very helpful, despite having significantly shortened working days and overall staffing levels.

Similar information that was gathered through the IRWM outreach process emerged from the meetings with all Riverside County entities. Riverside County entities stated that DACs in the Coachella Valley suffered from several issues that were related but not individually solvable. Riverside County has a long history with agricultural worker housing and issues with mobile homes in the rural eastern Coachella Valley, which are generally not located within the service areas of the CVRWMG agencies. The issues are

more complex since in some areas the residences, which are frequently mobile home parks, are erected on land under tribal control or are not permitted. While the tribal nations are cooperative with Riverside County, tribal sovereignty it makes solving issues on tribal lands more difficult to resolve due to jurisdictional conflicts.

In the light of many significant problems, Riverside County closed many illegal mobile home parks, forcing many residents of the mobile home parks to look for other affordable housing, which is very limited within the eastern Coachella Valley. Without adequate, legal, affordable housing, new illegal parks or Agricultural Worker Housing (housing developments with less than 12 units developed under planning and zoning exception authorized by a bill authored by Senator Richard Polanco) are routinely used to provide housing to DACs. The latter are commonly referred to as Polanco Bill Parks or just Polanco parks. The Polanco parks may be legally developed with a maximum of 12 mobile home park spaces, plus a main unit and second unit on the site, provided that the Zoning Code allows for a main unit and second unit on the site.

Polanco parks have reduced permitting requirements but commonly are not permitted at all. Providing affordable and permitted housing for low paid workers such as seasonal, agricultural, construction and service workers is difficult, because even Polanco parks that have reduced permitting requirements are required to have adequate fire, water, electrical, and sewer services. Given that many of the Polanco park owners are themselves economically disadvantaged, the parks are often not in compliance with all zoning and code requirements due to economic and technical barriers. The issue of adequate housing for low-income residents is pervasive in the Coachella Valley; to address this issue, County entities coordinate eastern Coachella Valley housing and Environmental Justice issues through regular meetings.

A list of mobile home parks with known water or wastewater issues was provided to the DAC Outreach Program as part of the outreach meetings by Jon Rokke, staff for the Regional Board. This list was geocoded and represented in map form for selection of areas for additional review which eventually became focus areas (refer to *Section 4.3 Initial DAC Characterization and Feedback*).

As the issues were discussed with all groups, most reported that drinking water treatment or alternatives were being implemented at a much faster rate than wastewater/septic solutions. Old or undersized septic systems and poor percolation of waste water are common in DACs, and the existing septic systems are difficult to modify in unpermitted mobile home parks and some Polanco parks.

4.2.6 Meetings with Tribes That Include DACs

Tribal meetings were held throughout August and September 2012. The purpose for each meeting included providing updates on the IRWM Program, discussing upcoming grant opportunities and defining characterization of the tribe to be included in the 2014 IRWM Plan Update. Meetings were held with three tribal nations that include DAC population areas, including 29 Palms, Cabazon, and Torres-Martinez.

4.2.7 DAC Outreach Program Recommendations

As with the rest of the State of California, the Region has experienced relatively low levels of participation by DACs in the IRWM Program despite the prevalence of DAC issues and substantial outreach to DACs. Following the efforts of the DAC Outreach Program (described in this chapter of the IRWM/SWR Plan and presented in **Volume II**), the CVRWMG has identified issues that have hampered DAC participation in the IRWM Program and developed a series of recommendations to address these issues. Issues that impact DAC participation in IRWM planning and recommendations to overcome those issues are summarized in **Table 4-2**, and presented in **Appendix VII-D**.

Table 4-2: Recommendations to Improve DAC Participation in IRWM Planning

Issue	Recommendation	Potentially Responsible Party
General Participation		
IRWM Program Complexity - Changing Requirements	Provide regional transparency – explain why requirements are changing	DWR
	Respond to comment letters from IRWM stakeholders	DWR
	Support education and outreach to increase statewide knowledge of IRWM	DWR
IRWM Program Complexity – Complicated Requirements	Reduce requirements of IRWM Guidelines and allow regions to complete locally-relevant planning	DWR
	Ensure necessary resources are available to implement program	DWR
Role of IRWM Program	Provide ongoing transparent information and education about IRWM Program, it's purpose, potential, and successes (especially in DACs)	DWR
	Utilize organizations with strong relationships with DACs to participate in outreach efforts	DWR/CVRWMG*
Organizational Shifts and Spatial Coverage	Use successful DAC organizations to develop and mentor organizations in other areas to expand spatial coverage and delivery of water-related projects to DACs	DWR/CVRWMG*
Persistent Resistance to Engagement – Cultural Beliefs, Immigration Status, Language	Empower communities with tools to make them successful and expand their capacity	DWR/CVRWMG*
	Support longer-term engagement with established organizations that have successful outreach programs or are establishing successful programs	DWR
	Support/sponsor community forums and existing efforts outside water-related issues to conduct outreach about water resources and related opportunities to support needs	DWR/CVRWMG*
	Bring together diverse groups to develop projects and improve working relationships	DWR/CVRWMG*
Grant Funding		
Grant Funding Delays	Provide operating and project capital and streamline invoicing and payment to 30 days for DACs and rural areas. Provide organizations implementing critical DAC projects with start-up funding to increase their cash flow and allow them to begin projects prior to receiving grant funding	DWR
Technical Complexity of IRWM Grants	Reduce technical and economic analysis requirements for DAC projects in grant applications	DWR
Grant Funding Restrictions	Modify grant funding restrictions to meet identified DAC needs	DWR

**Note: The CVRWMG would implement these recommendations on-the-ground but require financial support from DWR for sustained efforts.*

The DAC Outreach Program also provided additional recommendations that are directed towards DWR and designed to improve overall DAC participation in IRWM/SWR planning and implementation. These recommendations, which are summarized in **Table 4-3**, are based on the outreach efforts undertaken through the DAC Outreach Program and are a result of lessons-learned from DAC outreach efforts.

Table 4-3: Summary of DAC Outreach Program Recommendations

Recommendation	Elements of Recommendation	Responsible Party
Partner with Established Non-Profit Organizations	Leverage existing relationships between local non-profits and DACs to conduct outreach and implement programs	CVRWMG*
	Learn successful techniques for working with DACs	CVRWMG/local non-profits*
Establish a DAC Track to Facilitate Participation	Modify project selection requirements – reduce technical and economic analysis requirements	DWR
	Deference to local project selection process – allow local project selection process to determine most beneficial implementable projects for DAC funding	DWR/CVRWMG*
	Expedited project expense reimbursements – reduce reimbursement wait time to 30 days or less	DWR
Provide Planning Grant Funding to Support DAC Needs	Fund ongoing DAC outreach	DWR
	Fund technical assistance to prepare projects for grant applications	DWR
Expand the Role of Regional Representatives	Increase transparency of IRWM changes through communication via Regional Representatives	DWR
	Regional Representatives should respond to comment letters	DWR
	Leverage existing forums and established outreach mechanisms to build relationship between DACs and Regional Representatives	DWR

**Note: The CVRWMG would implement these recommendations on-the-ground but require financial support from DWR for sustained efforts*

4.3 Initial DAC Characterization and Feedback

An initial component of determining DAC issues in the Coachella Valley included mapping of the areas within the Region that would qualify as DACs per the definition established by DWR. DWR defines a DAC as a community with a median household income (MHI) that is less than 80% of statewide MHI. For most IRWM areas determining DACs is based on MHI data provided by the United States Census Bureau (U.S. Census) in both spatial and tabular forms.

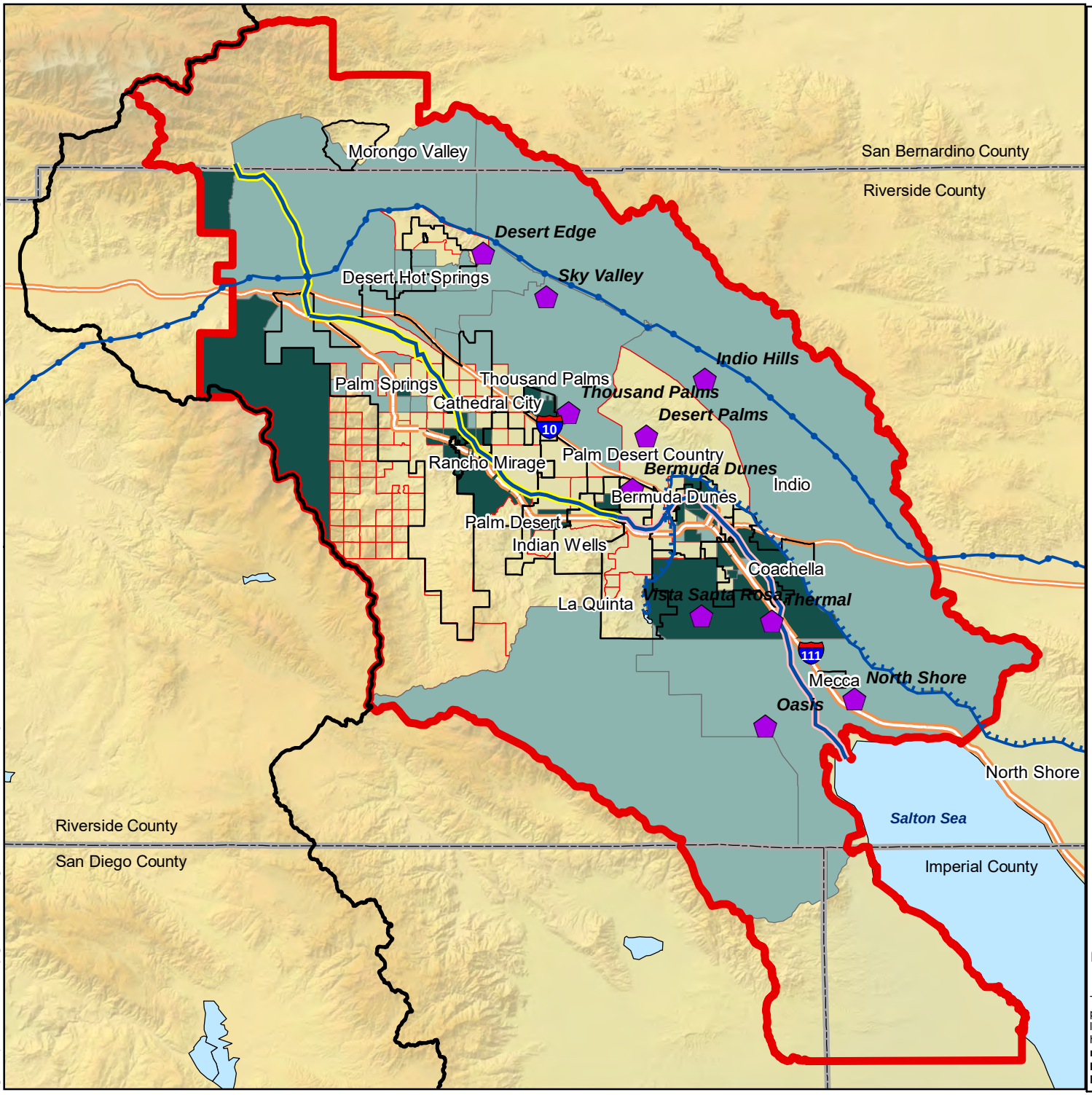
As discussed above in *Section 4.1.3 Previously Identified Projects*, accurate DAC stakeholder profiles and accurate data was one of the potential projects/issues identified by DACs. Since the inception of the IRWM Program and creation of initial DAC mapping using U.S. Census data, stakeholders have commented on the seeming inaccuracy of the data in demonstrating the true location of DACs within the Region. Accurate DAC mapping is also limited by the scale of income data. Data at the census tract or block-group level may overlook the existence of "pocket DACs" – small areas qualifying as DACs within larger, non-DAC areas. Without proper identification of these pocket DACs, their needs may go unmet. Therefore, a large portion of the work completed for the DAC Outreach Program involved additional mapping efforts to define the location of DACs. The mapping and ultimate characterization of DACs for the DAC Outreach Program was completed through a combination of data analysis and on-the-ground surveying that was used to verify the mapping data and provide additional information about the character of DACs throughout the Region.

4.3.1 Initial Characterization

The 2010 IRWM Plan draft initially used 2000 U.S. Census information updated with income information from 2005 American Community Survey. DAC stakeholders that provided input on the Public Draft of the 2010 IRWM Plan commented that the U.S. Census data used to produce DAC maps was too out of date to accurately represent the community, and therefore recommended that additional data with updated values be purchased. Additional (finer scale) data from a private company (Nielsen Claritas) was purchased and used for the 2014 IRWM Plan Update. **Figure 4-5** and **Figure 4-6** shows the DAC maps produced for the 2010 IRWM Plan, using 2000 U.S. Census data (tract level) and 2010 projections from Nielsen Claritas data (block-group level), respectively.

While the Nielsen Claritas data provided a better picture of the DACs in the Coachella Valley, this data was rapidly overshadowed by the release of the 2010 U.S. Census and American Community Survey data completed after the economic downturn in 2007. **Figure 4-7** and **Figure 4-8** shows the location of DACs in the Coachella Valley using U.S. Census data from 2010 (block-group level), and ACS 2012-2016 5-year estimate data (block-group level), respectively. As seen in the graphic, many disadvantaged and severely disadvantaged communities are in the Coachella Valley and are located in all water districts in the Coachella Valley. Although DWR does not make a distinction between disadvantaged communities and severely disadvantaged communities, this analysis used the additional marker of "severely disadvantaged communities", which is defined as those communities with a cumulative MHI that is less than 60% of the statewide average MHI.

With the availability of the new data and the funding of the DAC Outreach Program, a new approach and process was undertaken to map and characterize DACs in the Coachella Valley. For the new analysis, the existing DAC areas mapped using U.S. Census data at the block level and were divided in to 14 focus areas, which are shown on **Figure 4-9**. Focus areas include individual cities and communities that are used throughout this report as geographic points of reference. The focus areas in the Coachella Valley include the following: Whitewater, Desert Hot Springs, Garnet, Desert Edge, Cathedral City, Sky Valley, Thousand Palms, Coachella, Thermal, Mecca, Oasis, North Shore, Desert Shores and Salton City.



2010 IRWM Plan Disadvantaged Communities (2000 Census)

Figure 4-5

Legend

- Community Councils
- Colorado River Aqueduct
- Coachella and All American Canals
- Whitewater River Stormwater Channel
- Coachella Valley Stormwater Channel
- Highways
- Water Bodies
- Colorado River Funding Area
- IRWM / SWR Planning Area
- County Lines
- City Boundaries

Median Household Income (2000)

- $0 - $20,000
- $20,000 - $30,000
- $30,000 - $37,994
- >$37,994

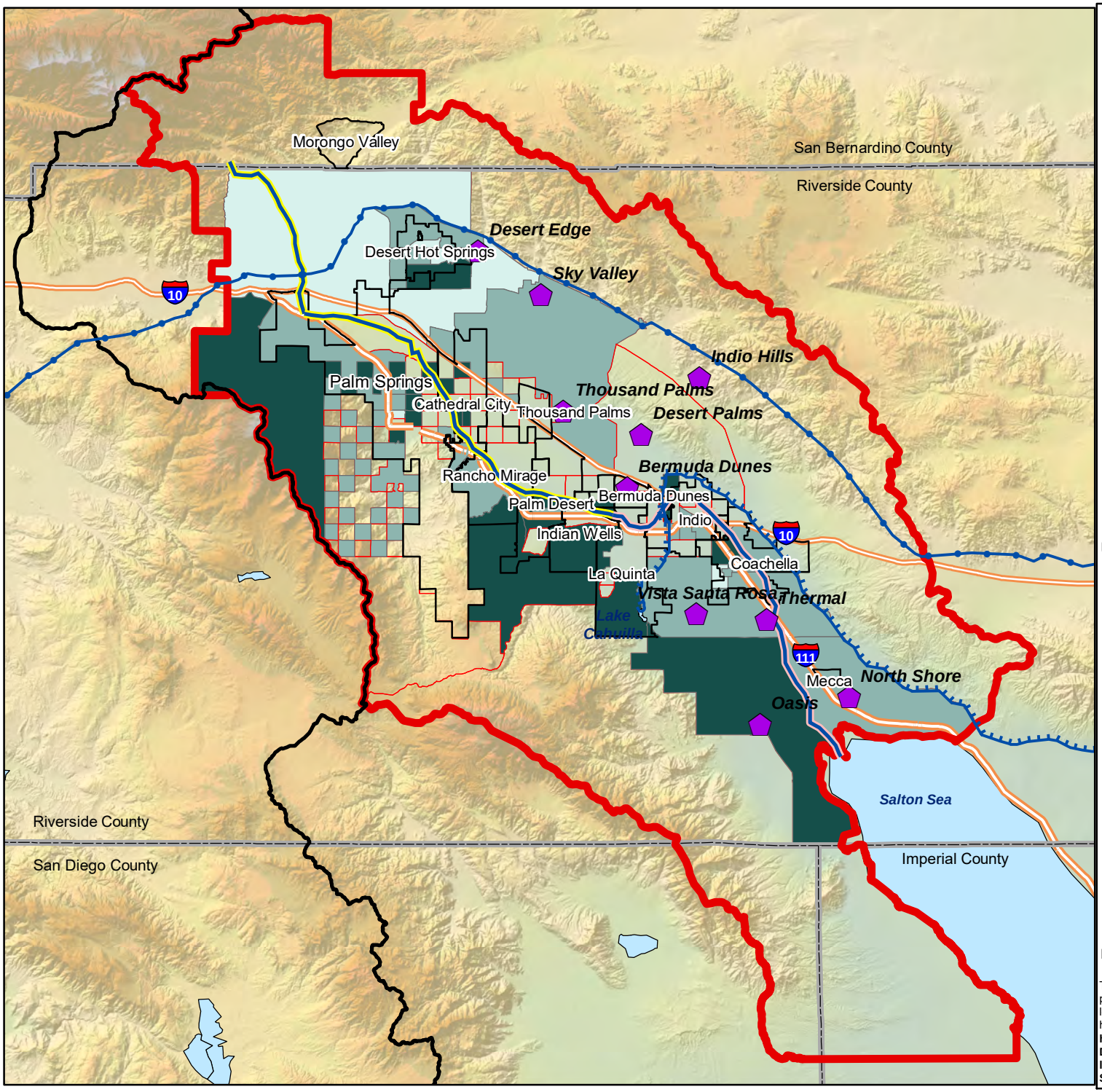
0 1.75 3.5 7 10.5 14 Miles

N

Map Created: June 2018

Third Party GIS Disclaimer: This map is for reference and graphical purposes only and should not be relied upon by third parties for any legal decisions. Any reliance upon the map or data contained herein shall be at the users' sole risk. **Data Sources: Statewide median household invome (MHI) in year 2000 was $47,493. Disadvantaged communities are considered those who earned less than $37,994 (80% Statewide MHI)**

Figure Exported: 6/20/2018 By: gvalenzuela Using: \\woodardcurran.net\shared\Projects\RMC\SD\0574 - CVWD\0574-002 Coachella IRWM Plan Update\03_GIS\2018 IRWM-SWR Plan Update\GIS\MXDs\Fig 4-5 2010 IRWM Plan Disadvantaged Communities (2000 C



2010 IRWM Plan
Disadvantaged Communities
(Claritas Data)

Figure 4-6

Legend

- Community Councils
- Colorado River Aqueduct
- Coachella and All American Canals
- Whitewater River Stormwater Channel
- Coachella Valley Stormwater Channel
- Highways
- Water Bodies
- Colorado River Funding Area
- IRWM / SWR Planning Area
- County Lines
- City Boundaries

Median Household Income (2010)

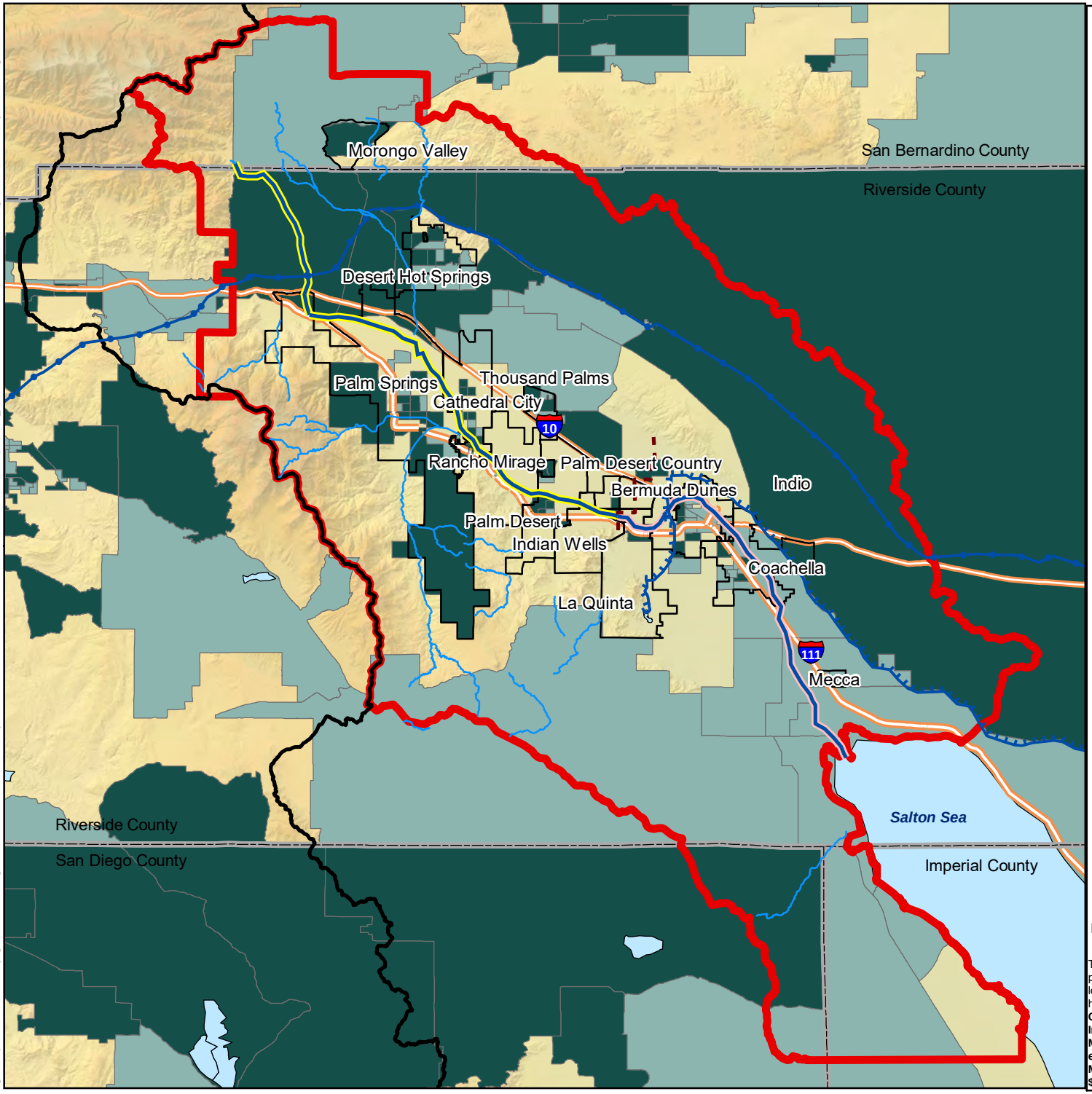
- $0 - $30,000
- $30,000 - $40,000
- $40,000 - $49,921
- >$49,921

0 1.75 3.5 7 10.5 14 Miles

N

Map Created: June 2018

Third Party GIS Disclaimer: This map is for reference and graphical purposes only and should not be relied upon by third parties for any legal decisions. Any reliance upon the map or data contained herein shall be at the users' sole risk. **Statewide median household income (MHI) in year 2010 was $62,401. Disadvantaged communities are considered those who earned less than $49,921 (80% Statewide MHI)**
Source: Nielsen Claritas 2010



Coachella Valley Disadvantaged Communities (2010 Census)

Figure 4-7

Legend

- Division between Western and Eastern Coachella Valley
- Colorado River
- Coachella and All American
- Whitewater River Stormwater Channel
- Coachella Valley Stormwater Channel
- Highways
- Rivers and Creeks
- Water Bodies
- Colorado River Funding
- IRWM / SWR Planning
- County Lines
- City Boundaries

Disadvantaged Community (DAC)

- $0 - $36,530 (Severely DAC)
- $36,530 - $48,706 (DAC)

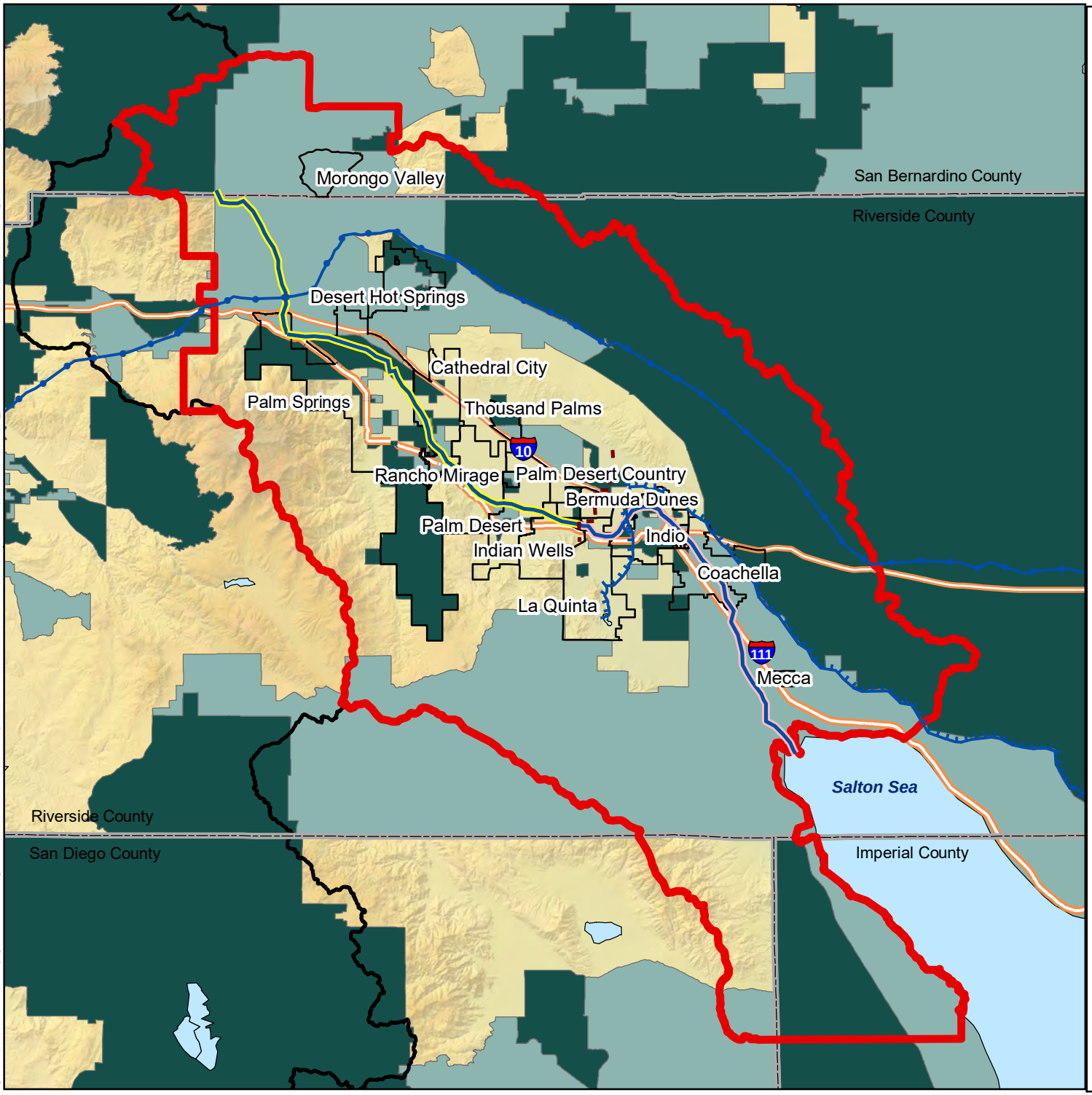
0 1.75 3.5 7 10.5 14 Miles

N

Map Created: June 2018

Third Party GIS Disclaimer: This map is for reference and graphical purposes only and should not be relied upon by third parties for any legal decisions. Any reliance upon the map or data contained herein shall be at the users' sole risk. **Data Sources: 2010 U.S. Census Data - American Community Survey Median Household Income (MHI), by block groups. DAC's are defined as having MHI of 80% of Statewide MHI. For 2010, DAC's were households earning $48,706 or less per year. Severely DAC are areas with MHI 60% or less of Statewide MHI. Severely DACs earn less than $36,531 in 2010.**

Figure Exported: 7/11/2018 By: gvalenzuela Using: \\woodardcurran.net\shared\Projects\RMC\SD\0574 - CVWD\0574-002 Coachella IRWM Plan Update\03_GIS\2018 IRWM-SWR Plan Update\GIS\MXDs\Fig 4-7 Coachella Valley Disadvantaged Communities (2010 Ce



Coachella Valley Disadvantaged Community (2016 Census)

Figure 4-8

Legend

- Division between Western and Eastern Coachella Valley
- Colorado River Aqueduct
- Coachella and All American
- Whitewater River Stormwater Channel
- Coachella Valley Stormwater Channel
- Highways
- Water Bodies
- Colorado River Funding
- IRWM / SWR Planning
- County Lines
- City Boundaries

Disadvantaged Community (DAC)

- $0 - $38,270 (Severely DAC)
- $38,270 - $51,026 (DAC)

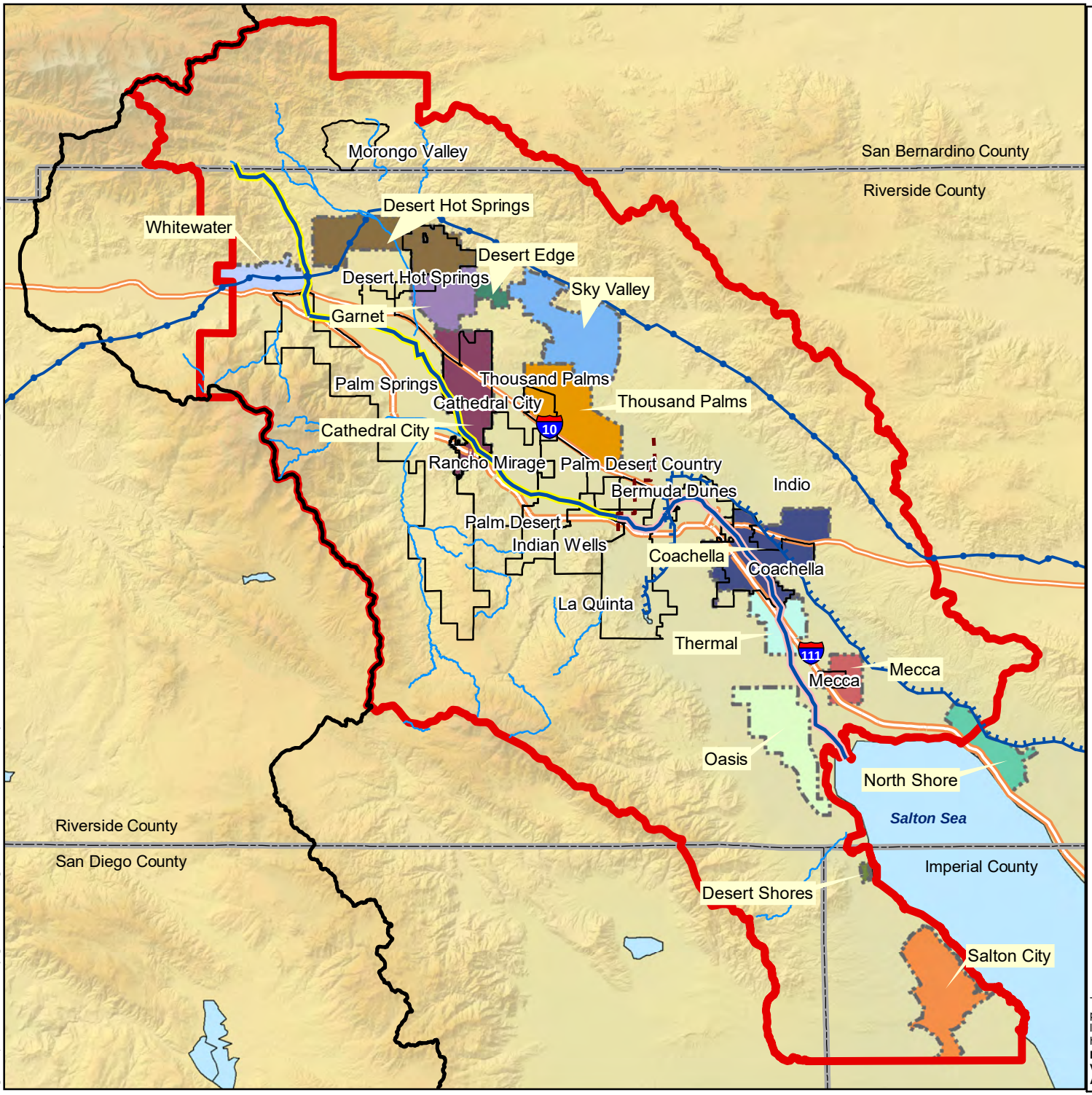
0 2 4 8 12 16 Miles

N

Map Created: June 2018

Third Party GIS Disclaimer: This map is for reference and graphical purposes only and should not be relied upon by third parties for any legal decisions. Any reliance upon the map or data contained herein shall be at the users' sole risk. **Data Sources: 2016 ACS 5-Year Estimate. American Community Survey Median Household Income (MHI), by block group. DACs are defined as having MHI of 80% of Statewide MHI. For 2016, DACs were households earning $51,026 or less per year. Severely DACs are areas with MHI 60% or less of Statewide MHI. Severely DACs earn less than $38,270 in 2016.**

Figure Exported: 7/11/2018 By: gvalenzuela Using: \\woodardcurran.net\shared\Projects\RMC\SD\0574 - CVWD\0574-002 Coachella IRWM Plan Update\03_GIS\2018 IRWM-SWR Plan Update\GIS\MXDs\Fig 4-8 Coachella Valley DAC (2012-16 ACS 5-Yr estimate).mxd



Coachella Valley Disadvantaged Community Focus Area

Figure 4-9

Legend

- Division between Western and Eastern Coachella Valley
- Colorado River Aqueduct
- Coachella and All American Canals
- Whitewater River Stormwater Channel
- Coachella Valley Stormwater Channel
- Highways
- Rivers and Creeks
- Water Bodies
- Colorado River Funding Area
- IRWM / SWR Planning Area
- County Lines
- City Boundaries

0 1.75 3.5 7 10.5 14 Miles

N

Map Created: June 2018

Third Party GIS Disclaimer: This map is for reference and graphical purposes only and should not be relied upon by third parties for any legal decisions. Any reliance upon the map or data contained herein shall be at the users' sole risk. **Data Sources: USGS Detection and Management of Land Subsidence in Coachella Valley, 2003-2005; Desert Water Agency GPS Control Survey April 2008 and Facilities Benchmarks, 1962-1994**

Figure Exported: 7/11/2018 By: gvalenzuela Using: \\woodardcurran.net\shared\Projects\RMC\SD\0574 - CVWD\0574-002 Coachella IRWM Plan Update\03_GIS\2018 IRWM-SWR Plan Update\GIS\MXDs\Fig 4-9 Coachella Valley DAC Focus Area.mxd

4.3.2 Census Re-Evaluation and Initial Research

Using Environmental Systems Research Institute's (ESRI's) Community Analyst tool, a demographic data type called Tapestry Segmentation was applied to each DAC Focus Area identified from income data. The Tapestry Segmentation Data goes beyond simple U.S. Census income data and classifies communities into 65 market segments based on various socioeconomic and demographic factors (ESRI 2012). Due to the wide range of demographic representation throughout the Coachella Valley, applying the Tapestry Segmentation Data to the existing DAC Areas helped identify those areas which would likely represent more severe DAC characteristics (see **Appendix VII-A** for complete Tapestry mapping).

Dominant Classes by Area

The Tapestry Segmentation Data defines a total of 60 "classes" of segments. Of these 60, six appear to be indicative of DAC Areas:

38. Industrious Urban Fringe – Family is central in the Industrious Urban Fringe neighborhoods and multigenerational households are relatively common. Living farther out from the urban center allow many to find the space for affordable homes to raise their families. These households take advantage of the proximity to metropolitan cities to pursue employment opportunities particularly in the manufacturing, construction, retail and service industries. In the Coachella Valley 6 of the 14 Focus areas include this class. This class does not appear to correlate directly to lower MHI.

41. Crossroads – Crossroad communities are frequently found in small towns which provide residents opportunity to own their own homes. More than half of Crossroad households live in mobile homes. This is a younger population of both married couples with and without children and single-parent families. Most of the employed residents work in the manufacturing, construction, retail and service industries. This class is associated with DAC status nationwide. In the Coachella Valley only 3 of the 14 Focus areas include this class. This class does not appear to correlate directly to lower MHI but is more represented in the north end of the Coachella Valley.

47. Las Casas – Nearly half of Las Casas residents were born outside of the United States and households are dominated by families. This is a young segment and has the highest average household size. With educational attainment being low, employment is typically in the service, agricultural, and manufacturing industries and part-time employment is common. Las Casas has the highest average household size which ranges from 3-to 4.7. Between 37 and 76% of residents rent their home. In the Coachella Valley 4 of the 14 Focus areas include this class. This class appears to correlate directly to lower MHI and is represented more in the eastern Coachella Valley than the western Coachella Valley.

49. Senior Sun Seekers – The Senior Sun Seekers are typically married couples without children and singles, typically 55 years or older. Many are retired or anticipating retirement, and more than half receive Social Security Benefits. Escaping from cold winter climates, many residents in this segment have permanently relocated to warmer areas; others are "snowbirds" that move South for the winter. This segment has the third highest proportion of seasonal housing. In the Coachella Valley 8 of the 14 Focus areas include this class. This class appears to correlate directly to higher MHI and is represented more in the western Coachella Valley than the eastern Coachella Valley apart from Salton City.

58. NeWest – NeWest segment has the third largest family size of all the Community Tapestries and families dominate this segment. This is a younger population and half are foreign born and have arrived in the United States in the last 10 years. Language is a significant barrier and over 50% have not finished high school limiting their employment options. Nationally over 50% of the residents in this class are children.

Unemployment is high in this class generally above 15% and some residents receive Supplemental Security Income or public assistance. Those employed in this class work in service and skilled labor occupations in construction, accommodation/food services, administrative services and agricultural sectors. In the Coachella Valley 3 of the 14 focus areas (Cathedral City, Mecca and Oasis) include this class. This class appears to correlate directly to lower MHI in the eastern end of the Coachella Valley. Nationally and locally many in this class live in mobile homes or apartments.

59. Southwestern Families – As the name implies, Southwestern Families communities are located typically in Southwestern states and are a mix of family types. Children are the center of these households and the average family size is 3.97, the fourth largest of the Community Tapestries. Nearly a quarter of residents are foreign born, many of whom immigrated before 1990. Linguistic isolation remains prevalent among recent arrivals and older generations. Most employed residents work in blue-collar, agricultural and service jobs and unemployment rate is high at 15%. In the Coachella Valley 6 of the 14 focus areas include this class which is distributed in both the eastern and western Coachella Valley focus areas. This class appears to correlate directly to lower MHI in the eastern end of the Coachella Valley. Nationally and locally many in this class live in mobile homes or apartments.

Of the six classes that represent DACs in the Coachella Valley, the 59. Southwest Families and 58. NeWest Residents are most highly and consistently associated with DAC and severely DAC communities in the Region. The Senior Sun Seekers class is also represented in some very low-income focus areas such as Desert Edge and Mecca, but also in some higher income areas such as Cathedral City and Thousand Palms.

The complete listing of all tapestry segments represented in the Coachella Valley is included in **Table 4-4**, on the following page.

Table 4-4: Focus Area Tapestry Segments

Focus Area	Tapestry Segments Represented	
Whitewater	1. Top Rung 24. Main Street 31. Rural Resort Dwellers, 33. Midlife Junction 38. Industrious Urban Fringe	41. Crossroads 49 Senior Sun Seekers 59. Southwestern Families 60. City Dimensions
Desert Hot Springs	1. Top Rung	41. Crossroads
Garnet	1. Top Rung 38. Industrious Urban Fringe	49. Senior Sun Seekers 59. Southwestern Families
Desert Edge	1. Top Rung	49. Senior Sun Seekers
Cathedral City	1. Top Rung 12. Up and Coming Families 14. Prosperous Empty Nesters 15. Silver and Gold 19. Milk and Cookies 21. Urban Villages 24. Main Street, USA 28. Aspiring Young Families	33. Midlife Junction 36. Old and Newcomers 38. Industrious Urban Fringe 43. The Elders 47. Las Casas 48. Great Expectations 49. Senior Sun Seekers 58. NeWest Residents
Sky Valley	1. Top Rung 15. Silver and Gold 38. Industrious Urban Fringe	43. The Elders 49. Senior Sun Seekers
Thousand Palms	1. Top Rung	49. Senior Sun Seekers
Coachella	59. Southwestern Families	
Thermal	1. Top Rung	47. Las Casas
Mecca Focus Area	1. Top Rung 49. Senior Sun Seekers	58. NeWest Residents
Oasis	1. Top Rung 15. Silver and Gold 21. Urban Villages 31. Rural Resort Dwellers 38. Industrious Urban Fringe	41. Crossroads 47. Las Casas 58. NeWest Residents 59. Southwestern Families
North Shore	1. Top Rung	47. Las Casas
Desert Shores	1. Top Rung	59. Southwestern Families
Salton City	1. Top Rung 49. Senior Sun Seekers	56. Rural Bypasses 59. Southwestern Families

4.3.3 Economic Stratigraphy of the Region

The economic differences in the Region are extreme by almost any standard. The Region contains some of California's highest property values in resort communities such as areas of La Quinta where more than 50% of homes are worth more than $700,000. The warm winters and excellent golf resorts draw many seasonal visitors and year-round residents. The Region also contains areas with nearly the lowest home values in California, such as Mecca, Oasis and Thermal near the Salton Sea where more than 50% of home values are below $50,000. Generally newer developed areas with significant amenities have greater affluence and generally are located closer to the San Joaquin Mountains in the western Coachella Valley.

The lower values are to the South and eastern end of the Coachella Valley, especially below Avenue 60 or east of the Interstate-10 freeway.

Spatial Variability and Temporal Changes

The eastern Coachella Valley has significant agriculture, and in areas like Oasis most residences are mobile homes. Average rents in these areas are often below $500 per month. These areas are difficult to provide services for because of the rural low-density nature of the development and the lower assessed valuation and resident affordability for services.

The western Coachella Valley, especially on the eastern side, including the communities of Desert Hot Springs, parts of Cathedral City and unincorporated areas of Garnet and Desert Edge, have a high predominance of service workers and fixed income retirees. While there are large mobile home parks in this area (refer to **Figure 4-10**), most houses in the western Coachella Valley are single family or small apartment complexes. Overall the assessed valuation and property values are slightly higher and while some communities are some distance from town centers, the population is denser. These factors may make providing services to the residents of these areas easier than in the eastern Coachella Valley; however, these areas still require significant assistance. The western Coachella Valley areas have low rental costs between $600 and $800 per month; however, vacancy rates are high at nearly 30%.

Also, in many portions of the Region, the greater detail within which an area is assessed, the higher spatial variability between small neighborhoods is apparent. In some cases, one or two streets or a new development with new services significantly improves an area, but not the adjacent area. Over time, areas fall into disrepair as somewhat better off residents move to newer more improved (gentrified) neighborhoods. In many cases neighborhoods adjacent to a new development with better services also receive the improved water, sewer and other services provided to the new development. In some cases, the actual residents can no longer afford the rents and monthly charges for the higher level of services and move to more affordable areas. Over time this issue will force very low-income families further into rural areas if they do not increase their capacity to pay for improved services.

Unique Attributes and Issues

From the analysis of the focus areas it is apparent that each area within the Region is somewhat different; however, some similarities and differences are clear. The focus areas are of different sizes but the largest number of DAC population in any focus areas is in Cathedral City and Coachella with nearly 92,000 combined residents. Other than Desert Hot Springs at nearly 26,000 residents, the remaining focus areas contain less than 9,000 residents per focus area. The Coachella focus area has relatively high household size density of 4.5 residents household which generally indicates a greater concentration of families. Also high in residents per household are the Oasis and North Shore focus areas, with 4.6 and 4.7 residents per household. These areas have a younger average age, below 30 years old, which indicates young families. In contrast with the Desert Hot Springs, Desert Edge and Sky Valley focus areas which have smaller household size 1.9 to 3.0 and higher average age from over 30 to mid-50s. The latter areas have higher numbers of residents who are retirees. The needs of these two groups (large younger families and small older families) are somewhat different for water and wastewater uses and other public services.

Density, in residents per acre, varies across the Coachella Valley. The highest density is in Cathedral City at 3.66 residents per acre. Also high are Desert Shores at 2.38 and Desert Edge at 2.63 residents per acre. Higher density can make provision of services more economical, if all other factors are equal. Many of the other areas have significantly lower densities from 1.71 in Desert Hot Springs to less than one person per

acre in White Water, Sky Valley, Thousand Palms, Thermal, Oasis, North Shore, and Salton City focus areas. Lower density can be an indicator of rural development which is more expensive to provide with water and sewer services. The complete list of all focus area statistics in Coachella Valley is included in **Table 4-5** below.

Table 4-5: Focus Area Select Statistics

Focus Area	Population	House-holds	HH Size	Acres	Density Res/Acre	MHI	Owner %	Renter %	Median Age
Whitewater	859	312	2.8	6,318	0.14	$39,375	73%	27%	40
Desert Hot Springs	25,938	8,650	3.0	15,131	1.71	$36,326	50%	50%	31
Garnet	7,543	2,174	3.5	7,312	1.03	$32,132	64%	32%	32
Desert Edge	3,823	1,969	1.9	1,451	2.63	$25,984	81%	19%	55
Cathedral City	51,000	17,047	3.0	13,924	3.66	$45,693	63%	37%	36
Sky Valley	2,406	1,064	2.3	15,533	0.15	$31,771	80%	20%	53
Thousand Palms	7,715	2,849	2.7	15,127	0.51	$42,656	78%	22%	43
Coachella	40,704	8,998	4.5	18,528	2.20	$43,012	62%	38%	25
Thermal Focus Areas	2,864	684	4.2	6,048	0.47	$33,998	40%	60%	26
Mecca Focus Area	8,577	2,020	4.2	4,454	1.93	$26,207	47%	53%	24
Oasis Focus Area	6,890	1,474	4.7	12,563	0.55	$25,469	24%	76%	23
North Shore	3,477	750	4.6	7,153	0.49	$31,591	65%	35%	24
Desert Shores	1,104	344	3.2	463	2.38	$18,958	65%	35%	30
Salton City	3,763	1,204	3.1	13,715	0.27	$32,805	70%	30%	34

While this mapping and analysis of the focus areas provides a significantly more detailed picture of the focus areas, not all DAC areas are completely included in a focus area and some focus areas include relatively more affluent areas within them. This diversity is normal and inherent to any boundary. This view of the communities is adequate to demonstrate important characters and greatly improve the IRWM/SWR Plan for DAC characterization. It was presented in several DAC and Project Partner meetings to get feedback on the process as well as the results. All comments received during the reviews were incorporated into the results presented.

4.3.4 DAC Outreach Survey and Mapping

Part of the DAC Outreach efforts included a survey questionnaire administered to Coachella Valley residents in May and June of 2013. Surveys were administered in both Spanish and English to improve the number of responses and better capture the concerns and issues identified by residents.

Opinion Survey Process Summary

The goal of the survey was to assess the topic areas of drinking water, wastewater management, and flooding in communities in the Coachella Valley that are considered severely economically disadvantaged by DWR. The survey questionnaire was administered by three non-profit organizations with Loma Linda University as the overall coordinator. El Sol Neighborhood Educational Center (El Sol) and Pueblo Unido CDC were the organizations responsible for gathering and training surveyors and administering surveys in the western Coachella Valley and the eastern Coachella Valley. Over 300 surveys were administered and the results were tabulated and summarized in the Disadvantaged Communities (DAC) Mapping and

Characterization Project Report (see **Appendix VII-B**, for the complete report). Results summarized within this section of the IRWM/SWR Plan are from a select collection of individual questions to understand opinions and perceptions of residents.

Six survey areas were selected for this effort, based on known and likely locations of DACs, and the surveying team originally attempted to administer 341 surveys. In total there were either no responses or refusals from 21 attempted surveys, resulting in 321 total surveys. It should be noted that not all respondents answered every question, and results are presented as percentage of respondents who answered a particular question and should not be taken as a percent of the total 321 surveys that received responses. Survey sites were geocoded to allow for mapping of the responses, the results of which are summarized below.

Overview of Mapped Survey Results

Based on survey results, maps were created to document locations of perceived water and wastewater issues as reported by survey respondents (refer to **Figure 4-11**). These results were not independently confirmed and therefore represent resident perceptions. Because the results represent resident perceptions, they are presented using terms such as "opinions" and "perception." Independent verification of survey results is a noted data gap acknowledged in *Chapter 11 Implementation Section 11.3.1 Overview of Data Needs*.

Within in each survey area, respondents generally provided similar answers when asked about their perceived water supply source, though the western Coachella Valley survey area located in and near MSWD and DWA's service areas had a wider variety of responses (refer to **Figure 4-12**). Further, many respondents across the Region were unsure of the source of their water. The perceived tap water quality map (see **Figure 4-13**) showed a similar pattern – within most study areas, respondents generally provided the same or similar response. The lowest perceived water quality was in the eastern Coachella Valley, particularly in the south and near the Salton Sea, and the highest perceived water quality was in the western Coachella Valley. Most survey areas had respondents who reported drinking tap water, with a conspicuous lack of tap water drinkers in the southernmost survey area along the Salton Sea in the eastern Coachella Valley. These respondents also overwhelmingly reported a perception of poor tap water quality.

Unlike the water quality and water supply responses, responses to questions about wastewater system types showed a wide range of perceived systems within each survey area, with several respondents indicating they did not know what type of wastewater systems they were using (refer to **Figure 4-14**). Relatively few of the respondents indicated that they believed themselves to be on sewer lines, and those that did were generally located in either the northern-most survey area in the western Coachella Valley, or the southernmost survey area in the eastern Coachella Valley. Very few of the respondents who believed themselves to be on sewer systems reported a wastewater problem.

As described in further detail below, responses to questions about flooding produced generally expected results, with most reported flooding or knowledge of flooding occurring in identified flood zones (refer to **Figure 4-15**).

Survey Indications

98% of the survey respondents qualify as severely DAC based on self-reported annual income, indicating that areas of focus used when selecting survey sites were correctly identified as potential DACs, and indicating that the Region has a good understanding of where DACs are located. Though many of the respondents live in DACs, and reported water and wastewater issues, very few respondents indicated that they knew of any community groups or organizations that help with health, water, or other problems. This indicates that communities may not have knowledge of available resources to contact in the event of a

problem or a concern regarding water and wastewater systems. This result also indicates a need to provide outreach and education, especially to those DACs that are located within the jurisdictions of incorporated cities (particularly in the western Coachella Valley) that may be well-served by contacting their jurisdictions to report code compliance and other resolvable issues.

A perception of poor quality tap water was reported by 32% of respondents, while 53% believed their tap water was of moderate quality. Only 35% of respondents reported that they drink tap water. However, 47% of respondents reported occasionally running out of drinking water, whether it was tap water or purchased water (e.g., bottled water), and 18% of respondents reported having contaminated water. Despite the perception of contaminated drinking water, a number or respondents reported that they drink tap water, oftentimes without further treatment (e.g., boiling, filtering). Survey respondents gave a variety of answers when asked who provided their water, indicating a lack of understanding of who was responsible for water supplies and safety, and therefore who to contact to report water issues. Due to the severely economically disadvantaged nature of the surveyed communities, it is also possible that residents drink tap water despite water quality concerns due to cost concerns associated with bottled water. This indicates that water supply provisions to the DACs must be cost-effective to be effective.

Survey respondents were asked what type of wastewater system they used and if they had experienced any wastewater system failures, indicated by smells, wet ground around the system, puddles during dry weather, grass near the system, or problems with sink or toilet flows (draining). Problems with wastewater systems were reported by 44% of respondents. The survey also found that the reported wastewater system fail rate among survey respondents was significantly higher than the reported 1-4% for California, and even the national failure rate of 10-20%. Overall, 30% of the wastewater failures reported by residents occur only once per year, though western Coachella Valley respondents reported more frequent wastewater system failures than eastern Coachella Valley respondents (refer to **Table 9** in the Report), indicating that western Coachella Valley communities may have more severe wastewater problems than eastern Coachella Valley communities.

Flooding was reported by respondents in a few of the study areas, and generally corresponded to mapped flood zones. Those areas reporting flooding that are outside of mapped flood zones were few, but generally located near mapped flood zones and the CVSC (refer to **Figure 4-15**). This finding supports local understanding that floods are common along flood zones and along the Stormwater Channel and that mapped flood hazard zones may not show the full extent of potential flood hazards.

Location of Mobile Home Parks (MHPs)

Figure 4-10

Legend

- MHP validated by survey
- MHP validated during June 2012 study
- Division between Western and Eastern Coachella Valley
- Colorado River
- Coachella and All American
- Whitewater River Stormwater Channel
- Coachella Valley Stormwater Channel
- Highways
- Water Bodies
- Colorado River Funding
- IRWM / SWR Planning
- County Lines
- Disadvantaged Community (DAC)
- Survey

0 1.75 3.5 7 10.5 14 Miles

N

Map Created: June 2018

Third Party GIS Disclaimer: This map is for reference and graphical purposes only and should not be relied upon by third parties for any legal decisions. Any reliance upon the map or data contained herein shall be at the users' sole risk. **Data Sources: 2012-2016 U.S. Census Data - American Community Survey Median Household Income (MHI), by block group. DACs are defined as having MHI of 80% of Statewide MHI. For 2012-2016 average (adjusted for 2016 inflation), DACs were households earning $51,026 or less per year.**

Figure Exported: 7/11/2018 By: gvalenzuela Using: \\woodardcurran.net\shared\Projects\RMC\SD\0574 - CVWD\0574-002 Coachella IRWM Plan Update\03_GIS\2018 IRWM-SWR Plan Update\GIS\MXDs\Fig 4-10 Location of Mobile Parks.mxd

Dwelling Type for Survey Respondents

Figure 4-11

Legend

- Division between Western and Eastern Coachella Valley
- Colorado River Aqueduct
- Coachella and All American
- Whitewater River Stormwater Channel
- Coachella Valley Stormwater Channel
- Highways
- Rivers and Creeks
- Water Bodies
- Colorado River Funding
- IRWM / SWR Planning
- County Lines
- Disadvantaged Community (DAC)
- Survey Area

Dwelling Type

- Mobile Home Park
- Apartment
- Single Family Home
- Unknown
- MHP validated during June 2012 study

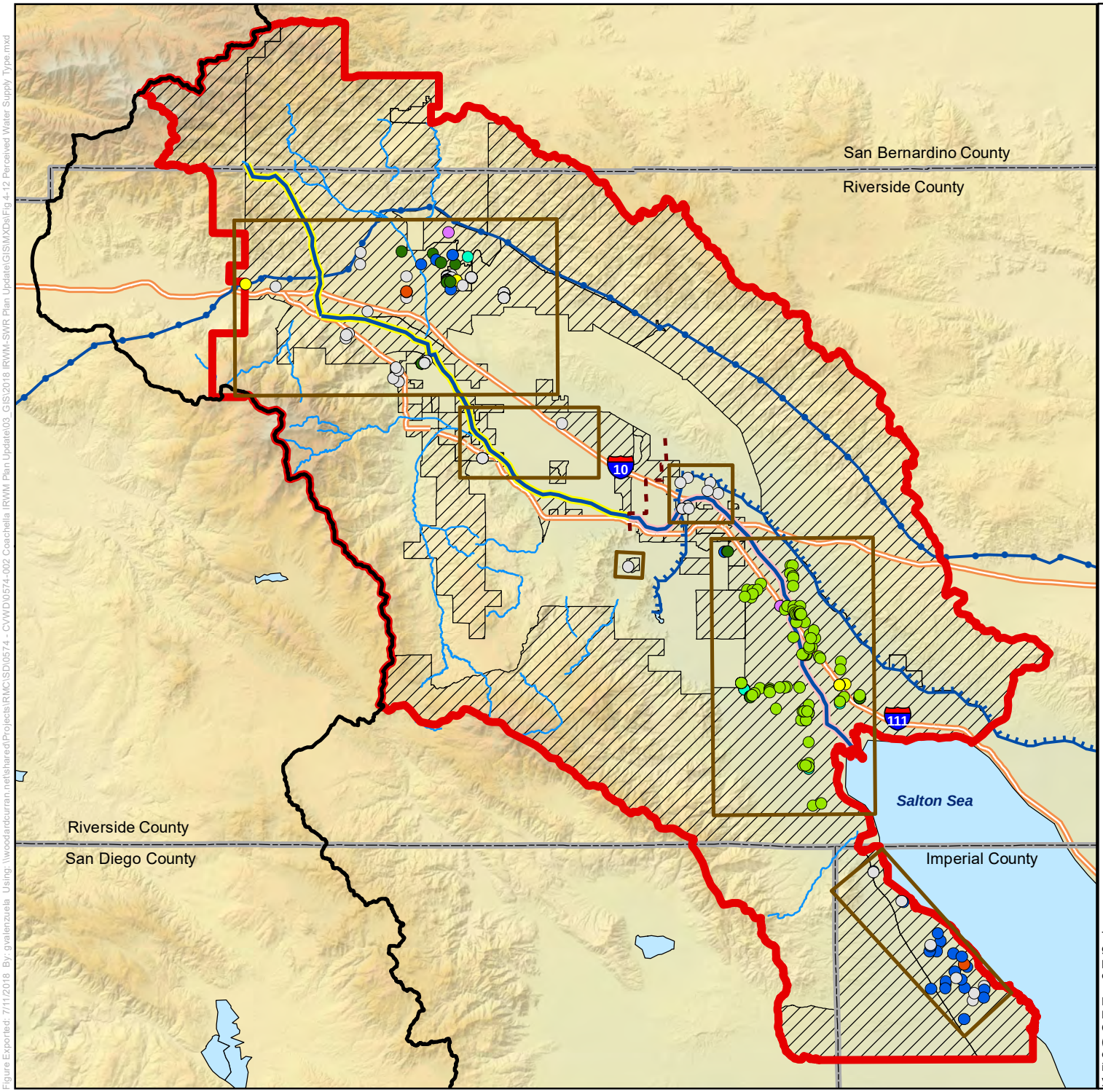
0 1.75 3.5 7 10.5 14 Miles

N

Map Created: June 2018

Third Party GIS Disclaimer: This map is for reference and graphical purposes only and should not be relied upon by third parties for any legal decisions. Any reliance upon the map or data contained herein shall be at the users' sole risk. **Data Sources: 2012-2016 U.S. Census Data - American Community Survey Median Household Income (MHI), by block group. DACs are defined as having MHI of 80% of Statewide MHI. For 2012-2016 average (adjusted for 2016 inflation), DACs were households earning $51,026 or less per year.**

Figure Exported: 7/11/2018 By: gvalenzuela Using: \\woodardcurran.net\shared\Projects\RMC\SD\0574 - CVWD\0574-002 Coachella IRWM Plan Update\03_GIS\2018 IRWM-SWR Plan Update\GIS\MXDs\Fig 4-11 Dwelling Type for Survey Respondents.mxd



Perceived Water Supply Type

Figure 4-12

Legend

- Division between Western and Eastern Coachella Valley
- Colorado River Aqueduct
- Coachella and All American
- Whitewater River Stormwater Channel
- Coachella Valley Stormwater Channel
- Highways
- Rivers and Creeks
- Water Bodies
- Colorado River Funding Area
- IRWM / SWR Planning
- County Lines
- Disadvantaged Community (DAC)
- Survey Area

Water Supply Type*

- Water Treatment Plant
- Private Well
- Municipal-Owned Well
- Other
- American Canal/Colorado River
- Irrigation District
- Unknown
- MHP validated in June 2012 study

0 1.75 3.5 7 10.5 14 Miles

N

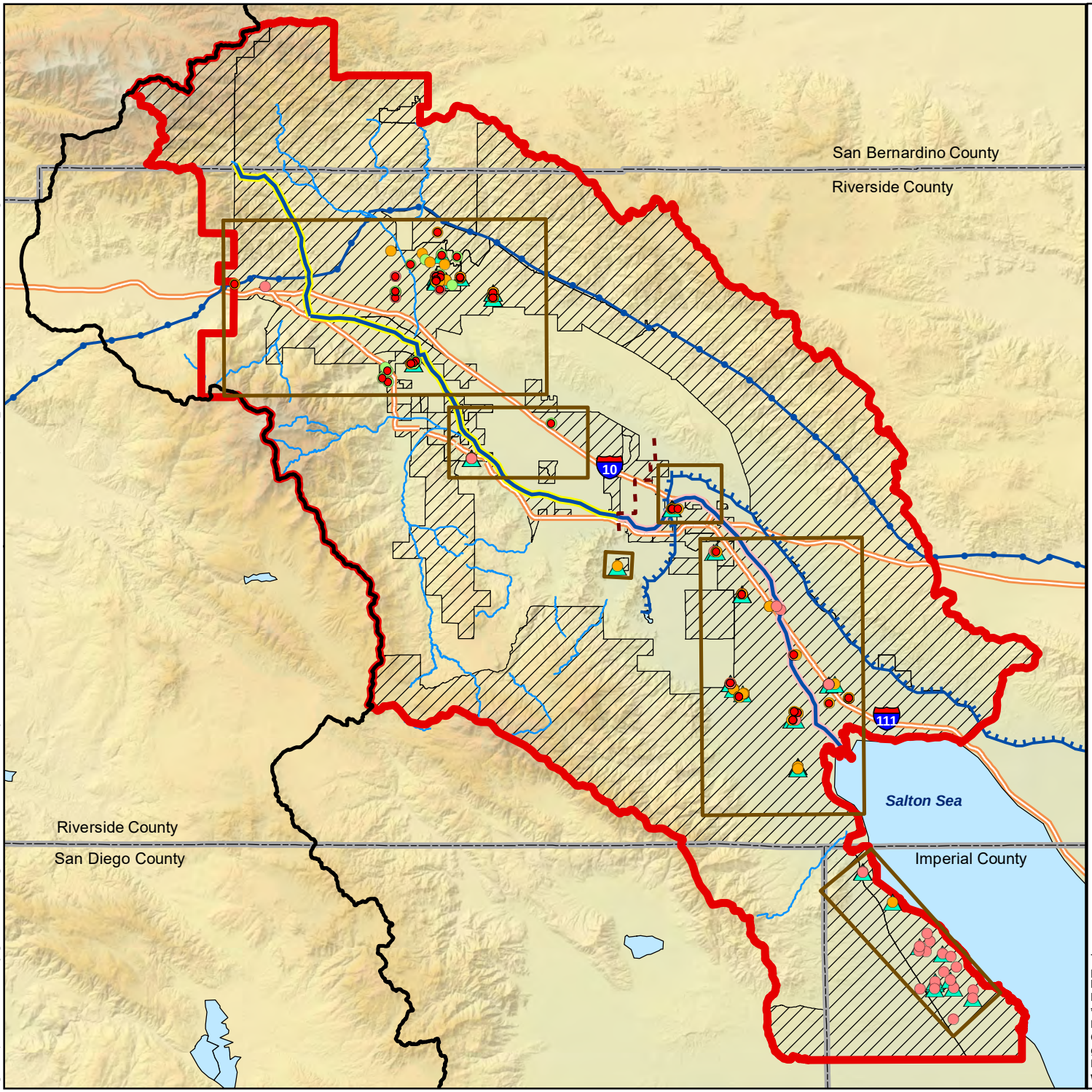
Map Created: June 2018

Third Party GIS Disclaimer: This map is for reference and graphical purposes only and should not be relied upon by third parties for any legal decisions. Any reliance upon the map or data contained herein shall be at the users' sole risk.

***Based on respondents' perceptions of supply origin, Results have not been independently validated.**

Data Sources: 2012-2016 U.S. Census Data - American Community Survey Median Household Income (MHI), by block group. DACs are defined as having MHI of 80% of Statewide MHI. For 2012-2016 average (adjusted for 2016 inflation), DACs were households earning $51,026 or less per year.

Figure Exported: 7/11/2018 By: gvalenzuela Using: \\woodardcurran.net\shared\Projects\RMC\SD\0574 - CVWD\0574-002 Coachella IRWM Plan Update\03_GIS\2018 IRWM-SWR Plan Update\GIS\MXDs\Fig 4-12 Perceived Water Supply Type.mxd



Perceived Tap Water Quality

Figure 4-13

Legend

- Respondents who said they drink their tap water
- Respondents who perceived that their drinking water was contaminated
- Division between Western and Eastern Coachella Valley
- Colorado River Aqueduct
- Coachella and All American
- Whitewater River Stormwater Channel
- Coachella Valley Stormwater Channel
- Highways
- Rivers and Creeks
- Water Bodies
- Colorado River Funding Area
- IRWM / SWR Planning Area
- County Lines
- Disadvantaged Community (DAC)
- Survey Area

Tap water quality*

- Poor
- Moderate
- Excellent

0 1.75 3.5 7 10.5 14 Miles

N

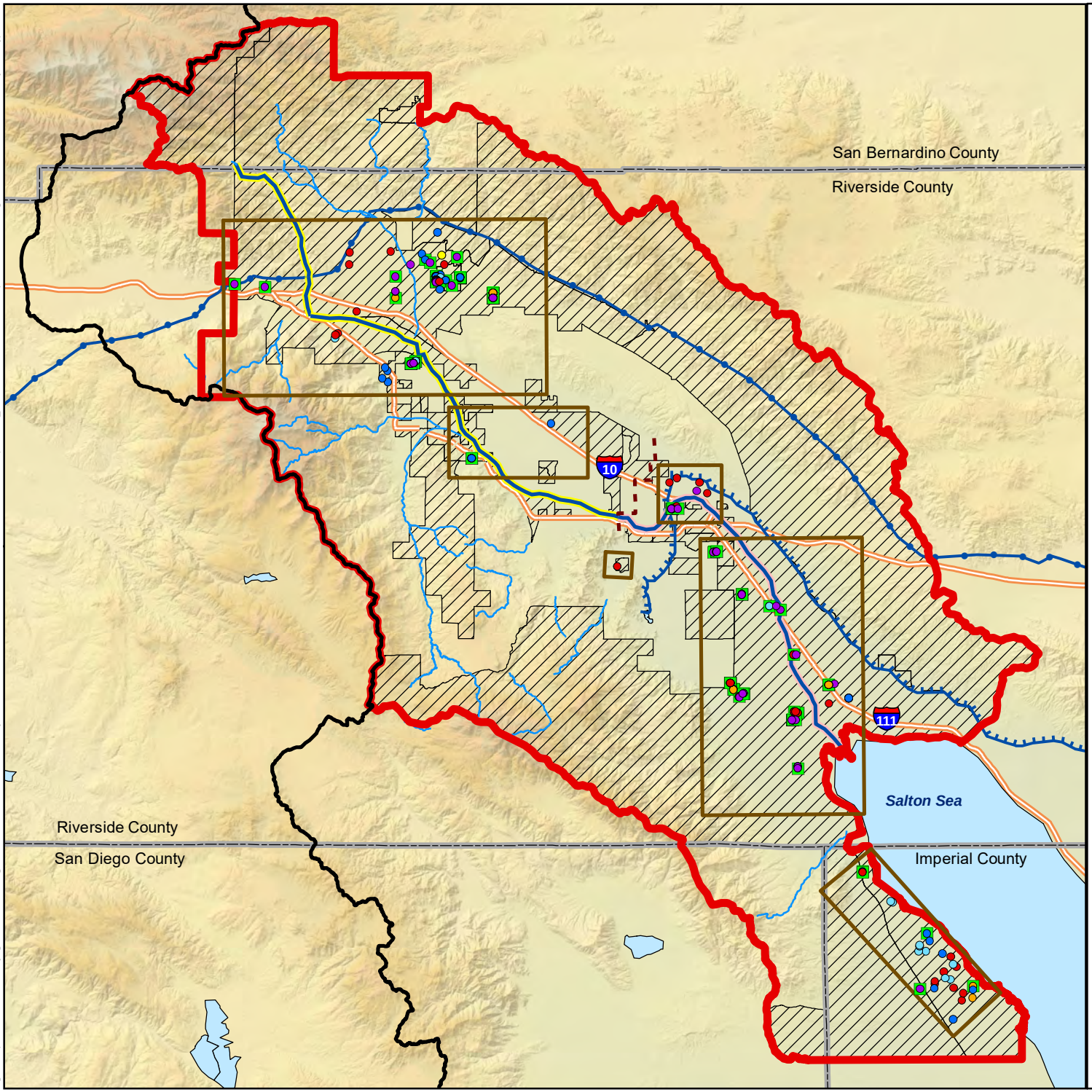
Map Created: June 2018

Third Party GIS Disclaimer: This map is for reference and graphical purposes only and should not be relied upon by third parties for any legal decisions. Any reliance upon the map or data contained herein shall be at the users' sole risk.

*** Respondents' perception of tap water quality**

Data Sources: 2012-2016 U.S. Census Data - American Community Survey Median Household Income (MHI), by block group. DACs are defined as having MHI of 80% of Statewide MHI. For 2012-2016 average (adjusted for 2016 inflation), DACs were households earning $51,026 or less per year.

Figure Exported: 7/11/2018 By: gvalenzuela Using: \\woodardcurran.net\shared\Projects\RMC\SD\0574 - CVWD\0574-002 Coachella IRWM Plan Update\03_GIS\2018 IRWM-SWR Plan Update\GIS\MXDs\Fig 4-13 Perceived Tap Water Quality.mxd



Perceived Wastewater System Types

Figure 4-14

Legend

- Respondents who perceived that they have a wastewater problem
- Division between Western and Eastern Coachella Valley
- Colorado River Aqueduct
- Coachella and All American
- Whitewater River Stormwater Channel
- Coachella Valley Stormwater Channel
- Highways
- Rivers and Creeks
- Water Bodies
- Colorado River Funding
- IRWM / SWR Planning
- County Lines
- Disadvantaged Community (DAC)
- Survey Area

Wastewater System Type*

- Sewer Line
- Septic System
- Cesspool
- Drainage Ditch/Lagoon
- Onsite, but type unknown
- Unknown

0 1.75 3.5 7 10.5 14 Miles

N

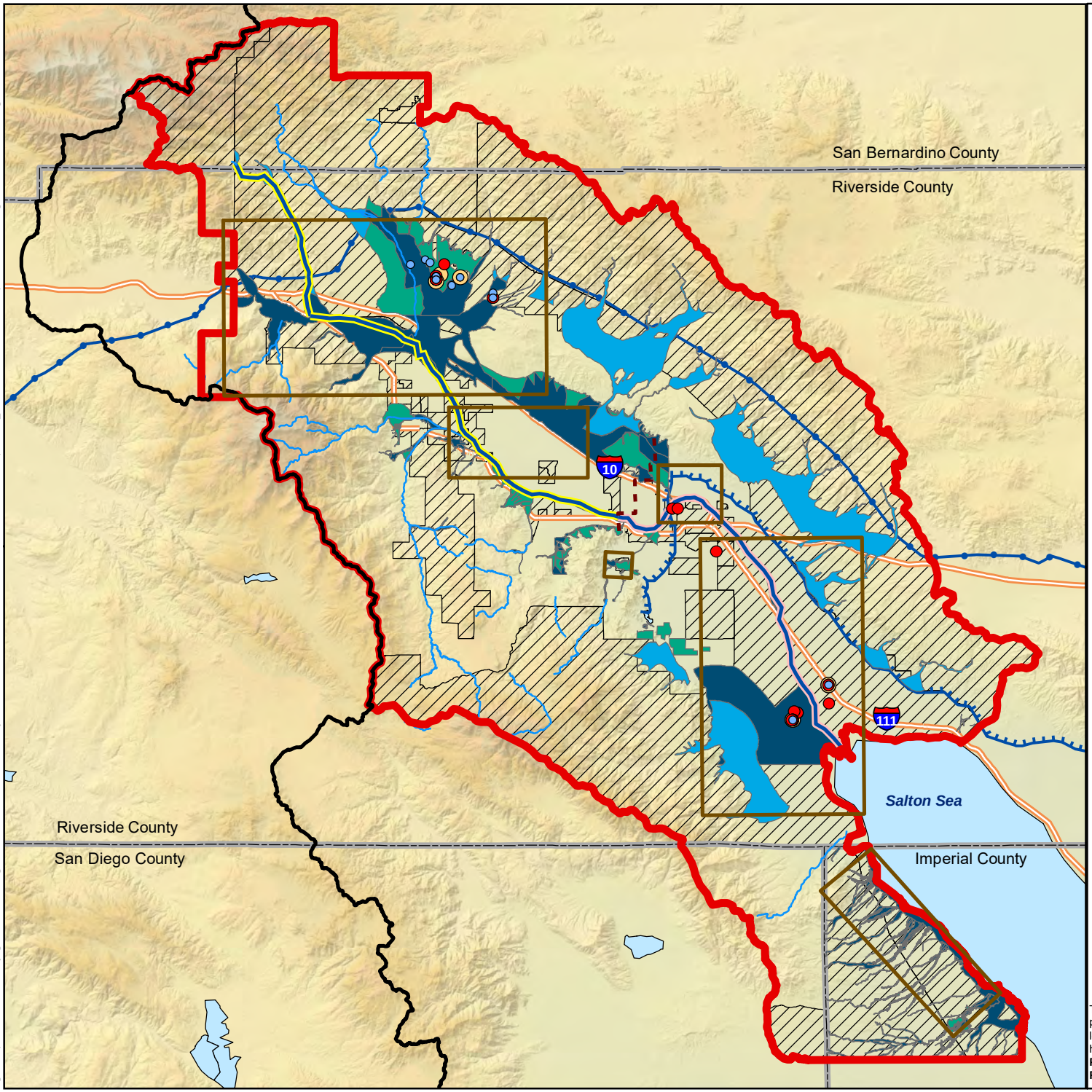
Map Created: June 2018

Third Party GIS Disclaimer: This map is for reference and graphical purposes only and should not be relied upon by third parties for any legal decisions. Any reliance upon the map or data contained herein shall be at the users' sole risk.

*** Respondents' perception of the type of wastewater system they have**

Data Sources: 2012-2016 U.S. Census Data - American Community Survey Median Household Income (MHI), by block group. DACs are defined as having MHI of 80% of Statewide MHI. For 2012-2016 average (adjusted for 2016 inflation), DACs were households earning $51,026 or less per year.

Figure Exported: 7/11/2018 By: gvalenzuela Using: \\woodardcurran.net\shared\Projects\RMC\SD\0574 - CVWD\0574-002 Coachella IRWM Plan Update\03_GIS\2018 IRWM-SWR Plan Update\GIS\MXDs\Fig 4-14 Perceived Wastewater System Types.mxd



Perceived Flooding

Figure 4-15

Legend

- Respondent knew the area was prone to flooding prior to moving there
- Respondent has experienced a flood in the past year
- Respondent has experienced a flood in the past 5 years
- Division between Western and Eastern Coachella Valley
- Colorado River Aqueduct
- Coachella and All American
- Whitewater River Stormwater Channel
- Coachella Valley Stormwater Channel
- Highways
- Rivers and Creeks
- Water Bodies
- Colorado River Funding Area
- IRWM / SWR Planning Area
- County Lines
- Disadvantaged Community (DAC)
- Survey Area
- DWR Flood Awareness
- FEMA 100-year Flood Zone
- FEMA 500-year Flood Zone

0 1.75 3.5 7 10.5 14 Miles

N

Map Created: June 2018

Third Party GIS Disclaimer: This map is for reference and graphical purposes only and should not be relied upon by third parties for any legal decisions. Any reliance upon the map or data contained herein shall be at the users' sole risk. **Data Sources: FEMA Flood Zone Designations, 2012 DWR California's Flood Future Report, 2013**

Figure Exported: 7/11/2018 By: gvalenzuela Using: \\woodardcurran.net\shared\Projects\RMC\SD\0574 - CVWD\0574-002 Coachella IRWM Plan Update\03_GIS\2018 IRWM-SWR Plan Update\GIS\MXDs\Fig 4-15 Perceived Flooding.mxd

Needs and Issues

Of the three issues areas focused on by the survey (water, wastewater, and flood), wastewater was considered the most critical need due to its regional prevalence and severity compared to state and federal statistics. Specific needs and issues identified by the survey are described below:

- Wastewater systems need maintenance and residents need education on how to maintain onsite systems to avoid failures, overflows, and other issues.
- Faulty septic systems need to be rehabilitated or where feasible, replaced with connections to municipal sewer systems.
- Education on the source of water supply can help individuals learn who is responsible for regulating, testing, and ensuring quality drinking water and provide contacts for issues that arise.
- Some areas may not have access to clean tap water, either through lack of municipal services, or through some source of contamination between the meter and the tap (e.g., leaky or corroded pipes, cross contamination), and need water treatment systems that would resolve drinking water quality concerns.

Potential Projects

Based on the survey and associated outreach work, several projects to assist DACs were identified to potentially resolve DAC needs and issues. Recommended projects include outreach and education, point-of-use treatment system installation, and septic-to-sewer conversion. The DAC Outreach Program has initiated or implemented some of these types of projects, as described in *Section 4.4 DAC Projects Developed Through Outreach Efforts*, below.

Education

An education project could include educating residents on the healthy, affordable choice of drinking safe tap water, in concert with water quality testing at the tap to demonstrate to residents that tap water is, in fact, safe to drink. For those areas with questionable tap water, safety and education projects could include a component on potential contamination that might occur between the meter and the tap, such as cross-connection issues or damaged pipelines that are beyond the jurisdiction of local water districts. Education programs should be tailored to the perceived and real issues and could be run by local non-profits who already have relationships with target communities.

Drinking Water Treatment

Not all respondents indicated that they had access to safe drinking water from the tap. Some residents that do not have access to safe drinking water from the tap may receive municipal supplies that get contaminated on-site, while others receive water pumped from private wells. Water quality tests from some wells in the eastern Coachella Valley have shown high levels of arsenic in excess of regulatory drinking water standards. Onsite water treatment systems with reverse osmosis treatment components can be a cost-effective solution for removing arsenic and other constituents of concern to provide DACs with access to safe drinking water from the tap.

Wastewater

Where feasible, it is recommended that areas experiencing faulty on-site wastewater treatment systems evaluate the feasibility of connecting to municipal sewer systems. The cost of providing a new sewer connection can be prohibitive, especially for DACs, so it may be beneficial for communities that are within feasible distance from existing sewer mains to work together as a consortium to work towards implementing sewer connections and applying for grant funding to support those connections. Education and outreach may also provide wastewater benefits by educating communities on proper wastewater system maintenance.

DAC Recognition and Support

It is likely that not all DACs in the Region have been officially identified and recognized as such. This lack of identification can hinder efforts to assist DACs, which may need to be recognized as DACs to be eligible for certain funding opportunities and help provide additional support. Based on survey responses, residents do not know who to turn to in the event of a problem, and due to the social and cultural make-up of many DACs, residents may not feel that they can ask authorities for assistance or report issues. A community liaison could act as the go-between for residents and the appropriate agencies for reporting issues or receiving assistance, without fears of enforcement of displacement.

4.3.5 DAC Water Quality Evaluation

One element of the 2014 IRWM Plan Update was a *Disadvantaged Communities Water Quality Evaluation* for the Coachella Valley focused on water quality issues in DAC areas (included as **Appendix VII-C**). The study was conducted to assess groundwater quality issues in and around DAC areas outside of the water purveyor's municipal service areas. Using existing data, this study identified chemical constituents with concentrations that are near or exceed drinking water standards in groundwater in DAC areas, and developed and screened possible solutions for addressing any impacts resulting from these elevated concentrations in groundwater in these identified areas. This study also identified gaps in water quality data coverage in the basin, such as information on the location of private wells and their water quality and presents a plan for addressing these data gaps.

Well, Water Quality, and Other Data Collected

Well, water quality, and infrastructure information was collected from the DWR, United States Geological Survey (USGS), statewide water quality databases and local water agencies. This data was used to identify areas where the concentration of any water quality constituent in the wells exceeded a regulatory limit. These areas were then compared to the DAC areas and the municipal water service areas of the CVRWMG agencies. Those areas that contained wells exceeding water quality thresholds, were mapped as being economically disadvantaged, and were not located within a CVRWMG agency service area (i.e. areas that do not receive municipal water service) were defined in the report as "Areas of Concern". The areas of concern are shown in **Figure 4-16** below.

Constituents and Treatments

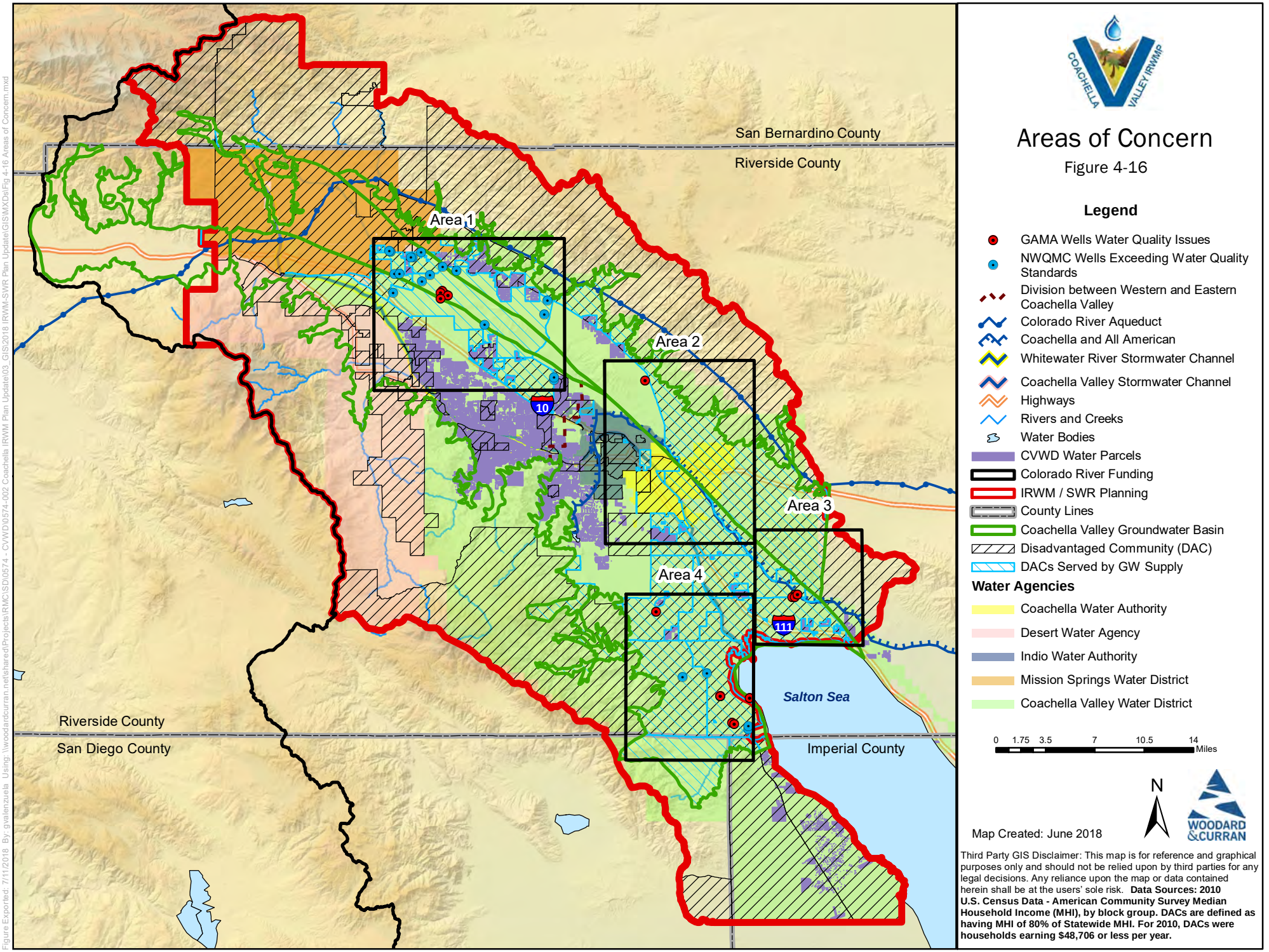
From the assessment of publicly available water quality data, several constituents of concern were identified in groundwater wells in exceedances of water quality thresholds: arsenic, fluoride, nitrate, uranium, and potentially hexavalent chromium. While there is not yet a statewide standard for hexavalent chromium, due to the potential concern regarding this constituent and pending water quality regulations, this constituent was considered in the analysis. Sample points for arsenic were limited (8), but arsenic was found in DAC

areas in excess of the regulatory limit of 10 micrograms per liter (µg/L) (average concentration was 237 µg/L). This finding for arsenic is consistent with concerns expressed by DAC and tribal stakeholders in the eastern Coachella Valley, and supports IRWM funding of the STAT Project (refer to *Section 4.1 History* above). Fluoride and nitrate had a considerably higher number of sample locations and on average were above the regulatory levels of 2 and 10 milligrams per liter (mg/L) respectively. These levels were frequently found in DAC areas. Uranium was detected in some areas, especially in the western Coachella Valley, but the average concentration of 28.6 picocuries per liter (pCi/L) in the 52 sample locations was below the regulatory limit of 30 pCi/L. Hexavalent chromium had an average concentration of 9.1 µg/L and the State of California had a regulatory threshold of 10 µg/L, which is currently being reevaluated. There may be portions of the Region that exceed future statewide regulatory limits for this constituent.

More than 20 treatment alternatives were evaluated for aforementioned constituents in the Areas of Concern. These treatment technologies were evaluated for effectiveness and economics in accordance with US Environmental Protection Agency (USEPA) best available technology assessment. The analysis indicated that only Ion Exchange and Membrane Separation/Reverse Osmosis (RO) were effective for all constituents. Each Area of Concern would have to be individually evaluated prior to implementation of any treatment method, but these two technologies could potentially treat all the significant constituents found in DAC areas of the Coachella Valley.

Recommendations

The evaluation validated the initial STAT Project both in priority and in treatment. The project found that many of the water quality issues facing the DAC were in rural outlying areas. Membrane separation/RO was effective for all contaminants and the point of use and point of entry systems that were part of the STAT were cost effective and represented the best treatment alternative. Work to identify methods to expand these programs with help and support from non-governmental and local general government were recommended.



Areas of Concern

Figure 4-16

Legend

- GAMA Wells Water Quality Issues
- NWQMC Wells Exceeding Water Quality Standards
- Division between Western and Eastern Coachella Valley
- Colorado River Aqueduct
- Coachella and All American
- Whitewater River Stormwater Channel
- Coachella Valley Stormwater Channel
- Highways
- Rivers and Creeks
- Water Bodies
- CVWD Water Parcels
- Colorado River Funding
- IRWM / SWR Planning
- County Lines
- Coachella Valley Groundwater Basin
- Disadvantaged Community (DAC)
- DACs Served by GW Supply

Water Agencies

- Coachella Water Authority
- Desert Water Agency
- Indio Water Authority
- Mission Springs Water District
- Coachella Valley Water District

0 1.75 3.5 7 10.5 14 Miles

N

Map Created: June 2018

Third Party GIS Disclaimer: This map is for reference and graphical purposes only and should not be relied upon by third parties for any legal decisions. Any reliance upon the map or data contained herein shall be at the users' sole risk. **Data Sources: 2010 U.S. Census Data - American Community Survey Median Household Income (MHI), by block group. DACs are defined as having MHI of 80% of Statewide MHI. For 2010, DACs were households earning $48,706 or less per year.**

Figure Exported: 7/11/2018 By: gvalenzuela Using: \\woodardcurran.net\shared\Projects\RMC\SD\0574 - CVWD\0574-002 Coachella IRWM Plan Update\03_GIS\2018 IRWM-SWR Plan Update\GIS\MXDs\Fig 4-16 Areas of Concern.mxd

4.3.6 DAC Needs

During the outreach discussed in *Section 4.2 DAC Outreach Program Activities* and *Section 4.3 Initial DAC Characterization Feedback* there was the opportunity to identify and discuss DAC needs in significant detail. The sub-sections below include information about the issues, needs, and concerns that were expressed by DAC stakeholders during outreach conducted for the DAC Outreach Program. Several needs were later prioritized, and associated projects developed to address the priority needs through planning and engineering project support (see *Section 4.4 DAC Projects Developed Through Outreach Efforts*). Issues and needs of DACs are also included in *Chapter 3 Issues and Needs*, *Section 3.1.8 Disadvantaged Communities*), as part of the discussion of the Region's issues and needs.

Tribes That Include DACs

Some of the needs and concerns identified in the meetings with tribal DACs included water quality concerns of the Colorado River water quality and the perceived need for additional water treatment before this water is used to recharge the groundwater basin. In addition, tribal DACs, particularly the Torres-Martinez Band of Desert Cahuilla Indians notes that connection to municipal services seems to be the best option, because upgraded onsite water and wastewater treatment systems would require substantial technical proficiency and operations and maintenance that the Tribe does not have. Several projects were proposed by the Torres-Martinez Tribe for funding based on these meetings and discussions. Because of this effort, a project was included in the Proposition 84-Round 2 Implementation Grant application to complete design and engineering to extend CVWD's potable water system to a portion of the Torres-Martinez tribal lands.

For additional information on water issues on Tribal lands in the Coachella Valley, refer to *Chapter 3 Issues and Needs* and *Chapter 5 Tribal Water Resources*.

Water Supply, Wastewater, and Flooding

Throughout the outreach process undertaken for the DAC Outreach Program, three prominent issues were consistently raised by DAC stakeholders: water supply (drinking water), wastewater, and flooding. These issues may vary across the Coachella Valley in terms of priority and specifics but are considered the three primary issues facing DACs in the Coachella Valley.

Water Supply

DAC water supplies must be affordable, accessible, and in compliance with state and federal requirements to meet the needs of all Coachella Valley residents, including DACs. DAC and tribal groups in the eastern Coachella Valley have reported that arsenic levels and potentially other constituents exceed maximum containment levels (MCLs) set in statewide drinking water standards in localized groundwater wells. Despite these concerns, DAC groups have also noted that there is a need for public education on the safety of groundwater since many DAC residents may be unaware that the groundwater wells they utilize do not always meet drinking water standards.

Many DACs are not within urban areas, making water supply even more difficult as connecting to the municipal water system may be cost-prohibitive. Furthermore, in the eastern Coachella Valley, DACs may be relying upon groundwater from wells that are in the shallow aquifer and are not permitted to provide drinking water but rather were intended to provide water for irrigation purposes. A potential solution to such an issue would be to drill a deeper well to provide water from the Region's deep-water groundwater

aquifer, which is of higher quality. However, drilling new groundwater wells can also be costly and cost-prohibitive to DACs.

Stakeholders have also noted that there may be conflicts between landowners and residents of DACs in instances when economic interests of landowners' conflict with the interests of onsite DAC residents; this issue specifically pertains to the IRWM Program when such issues involve provision of adequate water supplies that meet drinking water standards.

Wastewater

Proper wastewater treatment and disposal is considered an issue throughout the Coachella Valley, and the Regional Board has identified water quality issues relating to failing and/or densely located septic systems within the Colorado River Basin. One potential solution for addressing water quality and other issues associated with faulty septic systems is to remove those systems and connect properties to the municipal sewer system. While the need for septic to sewer conversion is great, jurisdictional issues or high costs may delay or prohibit project construction.

Additionally, DAC communities within the eastern Coachella Valley may rely upon other wastewater disposal methods such as open lagoons, which can impart health and safety concerns to residents who may meet the untreated wastewater. Some eastern Coachella Valley communities are located within the service area of CVWD; however, these communities still may be located at a considerable distance from existing sewer lines. This distance in combination with low population density in the rural eastern Coachella Valley make sewer connection costs prohibitively expensive.

In the western Coachella Valley, particularly in the area around Desert Hot Springs, there are concerns that septic systems that percolate to the Desert Hot Springs Subbasin pose a contamination threat to the hot water aquifer, which is also the basis for the area's economy. While portions of the western Coachella Valley are located within MSWD's service area and MSWD has an extensive groundwater quality protection program, sewer connection costs and sewer construction costs are still a concern for DAC residents.

Stakeholders have also noted that there may be conflicts between landowners and residents of DACs in instances when economic interests of landowners' conflict with the interests of onsite DAC residents; this issue specifically pertains to the IRWM Program when such issues involve provision of adequate wastewater services, especially when existing onsite wastewater services pose a threat to public health.

Flooding

Flooding and storm management improvements are needed to address flooding hazards in DAC areas, particularly in unincorporated communities located in the eastern Coachella Valley. The CVSC, which was built to withstand a Standard Project Flood (greater than a 100-Year Flood), only provides protection to part of the Region. Although CVWD and other agencies are working on expanding flood protection in the Region, the Thousand Palms area and the eastern Coachella Valley (from Oasis to Salton City) are not protected by regional flood control facilities. These facilities are expensive and are generally funded from local property taxes; the rural (low density) and economically disadvantaged nature of the eastern Coachella Valley make extending expensive flood control facilities to this area difficult.

In addition to large-scale floods, several DAC areas have reported regular localized flooding during storm events. Such flooding generally occurs due to onsite issues such as improper site grading, which allow

storm flows to pool on the property rather than being conveyed offsite. In the eastern Coachella Valley onsite flooding is exacerbated by the nature of local soils, which are not conducive to rapid percolation and therefore result in flood flows remaining onsite until they eventually percolate or evaporate.

Other Needs

Based on the feedback provided at workshops and outreach meetings several important needs were raised that are not within the scope of IRWM/SWR planning or the DAC Outreach Program. Those other needs are briefly presented here for completeness and documentation.

Roads

Several DAC areas reported issues associated with unpaved roads and road maintenance. Some roads through DAC areas have high speed limits and few signals, and most roads are unpaved. This combination of road features can result in difficulty crossing the roads or having a safe place for buses to pick up children as cars drive at high speeds and kick up considerable dust, which reduces visibility. Some mobile home park residents also reported the presence of narrow roads that make such mobile home parks inaccessible to fire or other emergency services. This inaccessibility coupled with inadequate water supply and pressure make fighting fires nearly impossible in some areas.

The dust and dangers associated with non-maintained roads expressed by DACs are primarily health and safety issues. However, one related area that the issue of roads may have with the IRWM Program is that many residents reported using water to dampen roads near their homes to reduce dust. In this case, road paving would potentially conserve water.

Transportation

Transportation issues were reported by DACs during the workshop process. Specifically, in the more rural DAC areas transportation options are limited to personal vehicles, neighbors, or the vehicles of family and friends. Very few areas have well-developed bus or other transportation systems available, and personal vehicles may be cost prohibitive. One potential nexus that transportation issues have to the IRWM Program is that because DACs have limited transportation, they also have limited stakeholder access to IRWM Program meetings and educational materials.

Affordable Housing

There are many unpermitted mobile home parks in the eastern Coachella Valley that do not receive the required water system monitoring and provide housing to residents that cannot afford necessary treatment and testing procedures on their own. Thought and care must be used in development planning for these locations. The parks often need not just water or wastewater services, but also code compliant fire flows for structure protection, electrical service and related infrastructure which increases the cost of small parks.

Education and Related Services

All parents want their children to be educated and have opportunities to obtain education in a safe and healthy environment. Often the distance that must be traveled to primary and secondary schooling is a significant problem for families with children in more rural DAC communities. School districts and community groups work to identify services and support local schools to increase educational attainment and success. Often there are water and wastewater issues that complicate education. In several areas the

lack of safe adequate drinking water and with adequate fire flows prevented the opening and operation of a school that had been built. Treating the water and providing tanks worked to reduce the distance and increase school attendance.

Limitations

Despite the inclusion of DAC projects in the regional IRWM Implementation Grant applications and provision of grant funding for DAC projects, affordability of water supply and wastewater treatment continue to be key issues for DACs. In addition, groundwater quality in several DACs such as those with wells located in the perched aquifer (in the eastern Coachella Valley), hot water basin wells (in the Desert Hot Springs area), and agricultural wells (throughout the Coachella Valley), are not suitable for drinking. Many DACs are not within urban areas and therefore are not served by municipal water and wastewater systems, making water supply management in these DACs even more difficult.

While onsite water treatment systems (such as those installed by Pueblo Unido CDC for the STAT) have been successfully employed in the eastern Coachella Valley, water quality monitoring, training, and operations and maintenance funds are needed in these rural/remote areas to maintain onsite systems and ensure that water quality meets drinking water standards. The need for septic to sewer conversion is great throughout the Coachella Valley, but once installed, DACs worry that jurisdictional issues or high construction and connection costs may delay or prohibit project implementation.

IRWM Implementation Grants themselves have several limitations associated with the applications as well as the grant reimbursement process, which together may provide a barrier to DACs and organizations that represent DACs; these limitations are described in detail in the *Challenges to Participation in Integrated Regional Water Management* report that is included as **Appendix VII-D** to this IRWM/SWR Plan. The grant applications are challenging to prepare, requiring a substantial amount of technical information and analysis to complete. Due to the complexity required to prepare the grant applications, the costs can be high and potentially prohibitively expensive for DACs and DAC organizations. Furthermore, the information necessary to complete a successful grant application is extensive, involving technical details and often preliminary planning and design work. DACs and DAC organizations may not have the technical capability to produce such documents on their own and may also not be able to pay for outside technical support to produce such documents. The Coachella Valley IRWM Program has also found that even after DACs and DAC organizations receive IRWM grant funding, the reimbursement process required by DWR can be prohibitive to project implementation. For IRWM grants, DWR requires that grantees first expend funds, and then submit invoices to DWR for reimbursement. The reimbursement process can be lengthy, and some grantees have experienced multiple month delays in receiving invoice repayments. If cash flow is an issue for grantees, which it may be for DACs and DAC organizations, the reimbursement process can stall project implementation because the grantees must wait to receive repayments from DWR before continuing work. Finally, for those DACs that are mobile home parks whose owners do not live on-site or are not the small, family-owned parks included in the DAC Outreach Program's survey, there may be conflicting interests and priorities between property owners and residents, adding additional challenges and limitations to the successful implementation of DAC projects and solutions.

4.4 DAC Projects Developed Through Outreach Efforts

*This section complies with the **Organization, Coordination, Collaboration** requirements for the SWRP by highlighting the community participation provided for in IRWM/SWR Plan development. This section also complies with the **Education, Outreach, Public Participation** requirements by describing strategies to engage DACs and efforts to address environmental issues within the watershed.*

As described in *Section 4.1 History* above, during initial development of the 2010 IRWM Plan, DAC stakeholders, the Planning Partners, and the CVRWMG identified the need for additional design and engineering support to develop DAC projects so that they could be eligible for IRWM grants and other types of grant funding. Therefore, an important component of the DAC Outreach Program was to fill an identified need by providing design and engineering support for DAC projects that could be implemented to address critical DAC issues and needs.

Through the DAC Outreach Program, four project concepts were developed through extensive outreach with DACs and other IRWM stakeholders. The process undertaken to identify, develop, and implement the projects and project concepts is described in the following sections.

4.4.1 Project Concept Development and Outreach

Based on the issues and needs identified by DAC stakeholders during the DAC outreach undertaken for the Coachella Valley IRWM Program, three initial project concepts were developed. These concepts were developed to address the three primary issues reported by DAC stakeholders (refer to *Section 4.3.6 DAC Needs*):

- Drinking water quality concerns for those DACs who use water from private onsite wells, and especially those DACs in the eastern Coachella Valley that use water from shallow wells
- Wastewater management issues associated with improperly designed or maintained onsite wastewater systems, especially those that potentially threaten human health and the environment
- Onsite flooding issues, especially in the eastern Coachella Valley areas that are not protected by regional flood control infrastructure

Information about the three project concepts that is summarized in **Table 4-6** was translated into Spanish and distributed to IRWM stakeholders in both English and Spanish during the two DAC Workshops held in June 2013 and during the June 2013 Planning Partners meeting (refer to **Appendix VII-E** for copies of the bilingual project concept handouts distributed to stakeholders). Information about the three project concepts was also distributed to all IRWM stakeholders via email. Feedback received from stakeholders was used to determine areas within the Coachella Valley where the project concepts could be applied (areas that have drinking water, wastewater, and flooding issues) and was also used to determine potential project partners that could assist in project implementation.

The goal of the project development process undertaken for the DAC Outreach Program was to determine potential projects that could be identified and successfully implemented for future rounds of IRWM or other grant funding opportunities. Therefore, the general goal of the project concept development and outreach process was to determine potential sites that could be targeted for project implementation and to determine potential project sponsors that could be identified to assist in project implementation.

4.4.2 Project Prioritization and Selection

Feedback from stakeholders that was obtained during DAC workshops, from the Planning Partners, from individual meetings with DAC stakeholders (including the three non-profit partners), DAC surveys, and CVRWMG meetings were reviewed and assessed by the technical team, the CVRWMG, and the three non-profit partners. The technical team worked with DAC stakeholders (the three non-profit partners) and the CVRWMG to develop a list of selection criteria that would be applied to various project concepts to determine which projects would be selected for further design and engineering. These criteria are a combination of both the project prioritization and evaluation process identified in the 2010 Coachella Valley IRWM Plan and the preliminary project selection criteria include in the DAC Outreach Program Work Plan submitted to DWR in April of 2012. Those criteria include:

- Does the project concept address an identified DAC issue?
  - Determined based upon whether the project fits into one of the project concepts identified in **Table 4-6** or if the project addresses a DAC issue identified by stakeholders**.**
- Does the project concept have support at the community level?
  - Determined based upon input received from stakeholders either during the survey process or DAC outreach workshops.
- Does the project concept have a potential implementing organization that could move the project forward through implementation in the future?
- Does the project concept address a critical water quality or water supply issue in an identified DAC?
- Is the project concept consistent with the 2010 IRWM Plan Objectives?
- Could the project concept outcomes potentially be leveraged for additional funding?
- Is the resulting project cost-effective?

Table 4-6: Initial DAC Project Concepts

Project Concept	Background/Issue Statement	Project Description
Onsite Groundwater Treatment	There is an identified need to address localized groundwater quality issues, particularly in groundwater wells that pump from the shallow aquifer in the eastern Coachella Valley. Identified constituents in groundwater wells include fluoride, arsenic, uranium, nitrate, and total dissolved solids (TDS). Although not currently considered a constituent of concern, it is possible that hexavalent chromium (chromium VI) will need to be treated from local groundwater wells due to pending water quality regulations.	Onsite point-of-use (POU), point-of-entry (POE), or wellhead treatment systems have been proven successful in treating constituents such as arsenic that impact water quality for DACs in the eastern Coachella Valley. Due to the success of existing POU/POE/wellhead treatment projects and the proven technological success of membrane separation systems (reverse osmosis) in removing multiple constituents, these systems can continue to be installed to treat groundwater for residents in areas with known water quality issues. Such small-scale, onsite treatment projects are particularly favorable in areas that are located at far distances from existing municipal water systems and in communities where more costly options such as drilling deeper groundwater wells are not economically feasible. The proposed project concept would include development of a ready-to-proceed onsite treatment program for use by local non-governmental organizations and other interested

Project Concept	Background/Issue Statement	Project Description
		parties. The program would articulate appropriate environmental conditions, preferred systems/vendors, installation recommendations, and operation protocols for onsite treatment.
Septic System Rehabilitation or Replacement	Aging or failing septic systems have been cited as a potential source of water quality constituents such as bacteria and nitrates in local groundwater. Due to the importance of local groundwater quality throughout the Coachella Valley, there is a need to rehabilitate or replace aging or failing septic systems to protect the Region's groundwater supplies and prevent constituents of concern from coming entering the Salton Sea in areas where failing septic systems are located in the shallow groundwater aquifer. Stakeholders in the Region, particularly in the eastern Coachella Valley, have noted that failing septic systems (those with overflow issues) may not be properly sized and therefore experience overflows and leaks because they cannot handle the amount of flows needed to serve residents. Stakeholders have also noted that these overflows present human health and safety concerns as wastewater could come into contact with nearby residences.	Septic systems can provide a reliable and sanitary method for disposing of wastewater, provided that systems are appropriately designed and engineered and properly maintained. Due to the extensive nature of septic systems throughout the Coachella Valley, it is possible that septic system rehabilitation or replacement projects could be implemented to: 1) assess current issues with failing septic systems (determine why they are failing), and 2) implement actions necessary to resolve septic system issues – replacing, rehabilitating, or completing maintenance on the systems, based on identified issues. Septic system rehabilitation and replacement projects are optimal in areas that are located at far distances from municipal sewer systems, and in communities where connecting to the municipal sewer system may be too costly for residents or not desired by landowners. The proposed project would include development of a septic system rehabilitation program for use by local non-governmental organizations and other interested parties. The program would articulate appropriate environmental conditions, sizing procedures, preferred retrofit/rehabilitation techniques and recommendations, and maintenance protocols for septic systems.
Flood Control	The 2010 IRWM Plan identified areas within the Region, particularly in the eastern Coachella Valley, that are not protected by the regional flood control system and are therefore subject to alluvial-fan flash flooding from surrounding mountain ranges. Further information from stakeholders has indicated that small, onsite flood control projects such as detention basins can be difficult to permit due to potential issues with disease vectors such as mosquitoes. Vector control is of greatest concern in eastern Coachella Valley, where soil types and detention basin design may reduce infiltration	Extensive flood mapping is was conducted as part of the 2014 IRWM Plan Update and the DAC Outreach Program. While these efforts will identify flood-prone areas, there is still a need to coordinate with regulatory agencies and stakeholders to identify projects that can mitigate flood events in an economically-efficient manner. The proposed project would clarify the specific location of flooding hot spots and complete concept-level engineering to resolve those flooding issues. This concept design would address the necessary sizing and retention capacity of the flood structure.

Project Concept	Background/Issue Statement	Project Description
	ability of retained water. Vector control would be a concern in any area with improperly designed retention basins or soils that impede infiltration, such as clays. Due to the large costs associated with regional flood control projects, and the potential permitting issues associated with small-scale flood control projects, there is a regional need to identify flood-prone areas and coordinate with regional regulatory agencies to determine economically and technically feasible projects that minimize or prevent property damage from occurring during flash flood events.	

Multiple project concepts were reviewed with the aforementioned criteria, and many potential project sites were evaluated. In addition, a technical memorandum with information about the project concepts and scoring criteria was reviewed by DWR and posted on the CVRWMG public website for access by all stakeholders.

4.4.3 Project Descriptions

From the initial project concepts and potential sites, four projects were selected that would address identified DAC issues and would also be feasible for implementation given various constraints. Three of those project concepts were developed into projects by the technical team through the DAC Outreach Program (Project 1, Project 2, and Project 3). A fourth project that also serves DAC areas is included in this list (Project 4); although this project will address DAC issues and needs, it was not directly funded by the DAC Outreach Program but through the 2014 IRWM Plan Update.

Project 1: Educational Materials

This project includes the development of bilingual (English and Spanish) educational materials for economically disadvantaged communities located within areas that are experiencing substantial water quality or wastewater issues. The materials will include general information about water and wastewater systems within the Coachella Valley and will also provide information to residents about who to contact when experiencing a variety of water and wastewater system issues.

Although this project was not explicitly identified in the initial project concept phase, outreach conducted through the surveys and the DAC Workshops identified a need to provide educational materials for residents. These outreach efforts revealed a substantial knowledge gap regarding water and wastewater systems in the Coachella Valley, and found that local non-profit organizations such as El Sol Community Resource Center and Pueblo Unido CDC would benefit from having materials available to provide to residents to increase educational opportunities for various water-related concerns. In addition, outreach conducted during the western Coachella Valley Workshop found that many DAC residents in the western

Coachella Valley were experiencing water and wastewater issues that could be resolved through code enforcement. These stakeholders were generally residents of permitted mobile home parks, which are subject to code compliance by local municipalities. This outreach finding contrasted with issues discovered in the eastern Coachella Valley in mobile home parks that are generally unpermitted and therefore would first require infrastructure upgrades and improvements to become permitted residences.

The ultimate purpose of this project is to provide resources to residents to help them resolve issues that can be addressed by local agencies and provide local non-profit organizations with the information necessary to empower local DACs. The portion of this project that required development of educational materials was completed through the DAC Outreach Program, and those materials are available as **Appendix VII-F**. The next steps for project implementation required outreach and engagement with local non-profit groups to disseminate materials to local stakeholders and provide residents with the materials they need to understand water and wastewater systems in the Coachella Valley and secure code compliance for applicable water and wastewater issues.

Project 2: Determining Connection Opportunities

This project involves detailed mapping to help locate municipal service connection opportunities. The idea for this project was developed because of DAC outreach efforts that have occurred since the inception of the IRWM Program. Connecting residents that do not currently receive municipal services (water and wastewater) to the municipal system is a common request that has been expressed by DAC and other IRWM stakeholders throughout the duration of the IRWM Program. Septic-to-sewer conversion projects are commonly included in the IRWM Project Database (refer to *Chapter 9 Project Evaluation and Prioritization*), and almost $5 million of IRWM grant funding has been requested by the Coachella Valley IRWM Program for projects that would connect communities to the municipal sewer system.

Given the large and Region-wide demand for municipal system connections, there is a need to identify connection opportunities that are potentially implementable and could be included in subsequent rounds of IRWM grant funding. While the demand for municipal connections is high, it has been found that many of the connection projects submitted for IRWM grant funding are not technically or economically feasible. Due to the dispersed and rural nature of portions of the Region (particularly the eastern Coachella Valley), sewer extension and connection projects may not be cost-effective if they require construction of large lengths of pipeline for relatively few users. From a technical point of view, sewer connections are not feasible if property owners are unwilling to participate or residents are unable to provide requisite sewer connection fees.

Because many factors are involved in selecting potential sewer connection projects in the IRWM Region, Project 2 aims to provide technical information to help prioritize future connection projects from both technical and economic perspectives. To accomplish this goal, the project includes multiple steps, including:

- Identifying the location of existing and future (near-term) sewer collection systems throughout the Coachella Valley
- Overlaying the updated DAC map (refer to *Section 4.3 Initial DAC Characterization Feedback* above) on the sewer collection system map to determine which DACs do not receive municipal sewer services

- Overlaying survey data that indicates where DACs have reported overflowing or inadequate onsite wastewater (generally septic) systems to determine where there is an identified need to connect users to the sewer system

The mapping component of this project (Steps 1-3 above) has been completed; **Appendix VII-G** includes a map that shows the results of the mapping process.

The next step of this project will be to analyze the areas that were identified as having high connection potentials and conduct further analysis on project feasibility. The purpose of the feasibility assessment will be to screen projects for their potential implementation success and to screen projects for their relative benefits. This assessment will provide a tool to the CVRWMG and the Planning Partners to help prioritize seemingly similar septic-to-system conversion projects for subsequent rounds of IRWM funding. Factors that may be considered for feasibility include:

- Willingness of property owner to work with applicable local municipalities and residents to participate in a sewer connection project
- Ability and willingness of residents to pay sewer system fees
- Analysis of sewer system capacity to determine if sewer service could reasonably be provided given current and future sewer system capacity
- Cost estimation for each project and a comparison of that cost to the number of sewer connections
- Analysis of the wastewater collection system to determine if the project would increase beneficial reuse of water (determine if flows from the project would be sent to a wastewater treatment plant that treats water to tertiary levels for reuse as recycled water)
- Local analysis of water quality to determine if the existing onsite wastewater system could be contributing water quality pollutants to local groundwater or the environment
- Other project factors such as public outreach and education, benefits to Native American Tribes, ecosystem or habitat improvements, and other factors that would impart additional benefits

The feasibility analysis resulted in four connection feasibility classifications:

- **Main Immediate**: there is an existing water or wastewater main at the entrance of the DAC or on-site within the DAC
- **High Feasibility**: the existing water or wastewater main is less than a quarter mile from the DAC entrance
- **Medium Feasibility**: the existing water or wastewater main is between a quarter and a half mile from the entrance of the DAC
- **Low Feasibility**: the existing water or wastewater main is more than half a mile from the entrance of the DAC

Following feasibility classification, the project recommends confirming the status of connected sites, and re-evaluating any sites that are not actually connected. For DACs identified as high feasibility sites, feasibility will need to be confirmed, the potential for successful implementation evaluated, implementation steps identified (including detailed pipeline alignment and cost estimates, jurisdictions, financing, etc.), and benefits of implementation determined. Medium and low feasibility sites will need additional review, as funding allows, to determine if further consideration of sites for future connections is reasonable. It will also be important to periodically reprioritize sites as infrastructure, populations, and issues and needs change over time.

Project 3: Regional Program for Septic Rehabilitation

This project was developed based on the Project Concept #2 explained in **Table 4-6**, "Septic System Rehabilitation or Replacement." After outreach conducted for the DAC Outreach Program, it was determined that septic system replacement and rehabilitation needed to be addressed throughout the Coachella Valley and that stakeholders throughout the Coachella Valley were experiencing issues with their onsite wastewater systems. Outreach conducted for the DAC Outreach Program also found that one of the non-profit partners that participated in the program, Pueblo Unido CDC, who has been working in the eastern Coachella Valley for several years, has also been focusing on addressing wastewater issues. Due to Pueblo Unido CDC's experience with local mobile home park owners and residents and their technical experience with septic systems, it was determined that they would be the most appropriate partner to work with on program design and engineering for this project.

With the resources available to the DAC Outreach Program, the team determined that it would be preferable to develop a regional program that clarifies the process by which septic rehabilitation can be undertaken for local mobile home parks. As a demonstration component of this program, the project team will complete preliminary engineering and design work, including onsite soils percolation testing, for several mobile home parks. It was envisioned that this preliminary work could provide two outcomes:

1) A framework for future efforts to rehabilitate septic systems in the Coachella Valley as it would be able to demonstrate how to appropriately design septic systems for a range of different site conditions such as elevation, soil conditions, number of residents, etc. and
2) Actual design and engineering plans for several mobile home parks, which would make these sites potentially eligible to receive funding for implementation (construction and permitting) from a variety of grant programs.

The technical team worked with Pueblo Unido CDC to locate the mobile home parks where onsite percolation testing, design, and engineering would be conducted. The technical team also worked with the Riverside Department of Environmental Health to ensure that permitting and other components of the project were consistent with applicable regulatory requirements. During this process it was determined that Polanco Parks (those with up to 12 units) in the eastern Coachella Valley would be appropriate to target, because they have reduced permitting requirements and there are hundreds of Polanco Parks within the eastern Coachella Valley, making future replication more feasible. There were several reported failing and overflowing septic systems in the western Coachella Valley, however non-profit partners in this area did not have the established relationships with mobile home park owners or residents that were deemed necessary for successful future project implementation. Although preliminary design and engineering work for Project 3 was only conducted for mobile home parks in the eastern Coachella Valley, there is still an identified need for septic system rehabilitation in the western Coachella Valley. Ideally, the outreach materials produced through Project 1 (see *Section 4.4.3.1 Initial Characterization* above) will provide non-profit partners in the western Coachella Valley with the materials needed to establish successful relationships with mobile home park owners and residents, which can be leveraged in the future to develop septic system improvement projects in that area.

Four Polanco Parks in Thermal, CA were selected for this project: Valenzuela (Harrison between Avenues 81 and 82), Don Jose (Avenue 64 west of SR-86), Cisneros (Avenue 77 between Fillmore and Harrison), and Gutierrez (Harrison between Avenues 80 and 81). Soil testing was conducted at the three sites that had not yet been tested, design plans were drafted for all four sites, and regulatory requirements and processes were identified. Three wastewater alternatives were assessed for each site: conventional, nitrogen removal,

and centralized and decentralized options. Following these assessments, the four sites are now positioned to apply for or receive funding for construction and permitting.

These efforts resulted in a framework for future rehabilitation of septic systems at small sites like Polanco parks. This framework includes consideration of a range of different conditions, including elevation, soil conditions, and number of residents. Refer to **Appendix VII-H** for the complete project report.

Project 4: Regional Program for Onsite Water Treatment

This project was developed based on the Project Concept #1 explained in **Table 4-6**, "Onsite Groundwater Treatment." Elevated concentrations of fluoride, arsenic, chromium, uranium, nitrate, and total dissolved solids (TDS) are present locally in some groundwater, and in some areas of the basin, are presenting concerns about the quality of drinking water supplies. The primary purpose of this project is to follow-up on the STAT Project (refer to *Section 4.1 History*) and other work completed by local non-profit organizations such as Pueblo Unido CDC, DACE, and the Rotary Club to develop a regional program that clarifies how to install onsite water treatment systems for those DACs that do not have access to water that meets drinking water standards. The project also involved coordinating with the Riverside Department of Environmental Health and the Regional Board to ensure that permitting and other components of the project were consistent with applicable regulatory requirements.

Collaboration with Pueblo Unido CDC, DACE, and the Rotary Club has identified two key aspects necessary for an effective water treatment program in the eastern Coachella Valley: technical needs (water treatment) and community organization. The technical component of such a program will evaluate and identify the appropriate point of entry and/or point of use water treatment facilities for mobile home parks in the eastern Coachella Valley setting. The community organization component will include distribution of O&M manuals and emergency procedures, and development of rental agreements with park tenants for a monthly user fee to cover O&M costs (such as filter replacement). The technical team is developing a regional program that includes both program components, for use in accelerating the existing STAT and Rotary Club-Pueblo Unido CDC-DACE efforts to install treatment systems in both permitted and unpermitted mobile home parks that have documented drinking water quality exceedances. The program focuses on installation of appropriate, commercially-available reverse-osmosis under-counter treatment units for tenants at the mobile home parks. Materials developed for this program are provided in **Appendix VII-C**.

Key challenges to water quality in DACs include the ability of point-of-use (POU) treatment systems to address multiple constituents, the cost of treatment system units, the sustainability of the program, obstacles to system installation, and regulatory requirements imposed by California Department of Public Health (CDPH) for systems with more than 15 connections. Due to these regulatory requirements, the project focused on systems with 15 or fewer connections. The proposed program for such systems includes identifying and connecting all DACs located immediately adjacent to public water system pipelines, and development of POU assistance for all other DACs. POU assistance would be coordinated through organizations in the Region that regularly work with DACs, such as Rotary Clubs of Coachella Valley, Riverside County Department of Environmental Health (DEH) and non-profit organizations (including Pueblo Unido CDC and DACE, among others). A POU assistance program would develop a guidebook for purchasing, installing, and testing commercially-available under-counter POU reverse osmosis treatment systems, develop an O&M manual for monitoring and maintaining treatment systems, use grant funding to purchase and install POU reverse osmosis treatment systems on non-retrofitted trailer parks, and develop

investment and long-term funding program for O&M with the Rotary Clubs of Coachella Valley. Any long-term financing plan would be vetted with residents and/or the local organization implementing the project to ensure any costs to residents remain reasonable, and any rental agreements that include monthly user fees for treatment systems is drafted in compliance with California Civil Code §798.

For systems with more than 15 connections, a program is proposed that would treat systems on an individual basis, use the STAT program as a guideline, and continue to purse certification of CDPH-approved (NSF 61) systems for small-system wellhead treatment.

Page intentionally left blank.

5 Tribal Water Resources

This chapter addresses the needs and priorities of the Coachella Valley Integrated Regional Water Management (IRWM) Region's Tribal Nations.

This chapter presents an overall summary and introduction of the Tribal Nations of Coachella Valley, and the water resources and water management challenges of their reservations. A description of each tribe is included along with the key water resources issues of concern they have identified in Coachella Valley IRWM outreach meetings and participation in various water resources planning activities. Details about outreach efforts undertaken to address Tribal Nations through the IRWM/Stormwater Resource (SWR) planning process are discussed in *Chapter 7 Stakeholder Involvement.*

The final sections of this chapter focus on the status of the dialogue surrounding tribal water resources concerns, and tribal water monitoring activities in the Region's groundwater basins. A summary of regional water issues can be found within *Chapter 3 Issues and Needs, Section 3.1 Coachella Valley Issues and Needs*.

5.1 Coachella Valley Tribes

The Coachella Valley IRWM Region (Region) includes six federally recognized Reservations. These Reservation lands, which are governed by Tribal Nations, total over 69,000 acres or approximately 108 square miles. The locations of the Tribal Reservations are presented in **Figure 5-1** and information about each Tribal Nation is provided in **Table 5-1**.

Native American Tribes in or near the Coachella Valley are listed below. Five of these tribes expressed interest in participating in the Coachella Valley IRWM Program, and one tribe decided not to participate (denoted with an asterisk "*"):

- Agua Caliente Band of Cahuilla Indians
- Augustine Band of Mission Indians
- Cabazon Band of Mission Indians
- Santa Rosa Band of Cahuilla Indians*
- Torres-Martinez Desert Cahuilla Indians
- Twenty-Nine Palms Band of Mission Indians

The Agua Caliente and Torres-Martinez Reservations are the largest by area. The Agua Caliente Reservation is approximately 31,500 acres, while the Torres-Martinez Reservation is approximately 24,000 acres. The Santa Rosa Reservation is located at the boundary of the Region, but this Tribal Nation has decided not to participate in the Coachella Valley IRWM Program because they do not obtain their water resources from the Region.

Due to their historical presence in the Coachella Valley, Tribes face specific issues and considerations with relation to this IRWM/SWR Plan. Native

Americans are the original inhabitants of the Coachella Valley, having resided in the area for centuries. The water in the Coachella Valley has sustained these Native American people agriculturally, economically, culturally, and spiritually for a long period of time, as it still does today. The Coachella Valley Regional Water Management Group (CVRWMG) is collaborating with the local tribes on long-term water management planning to ensure that the water supply within the Coachella Valley is adequate for all users.

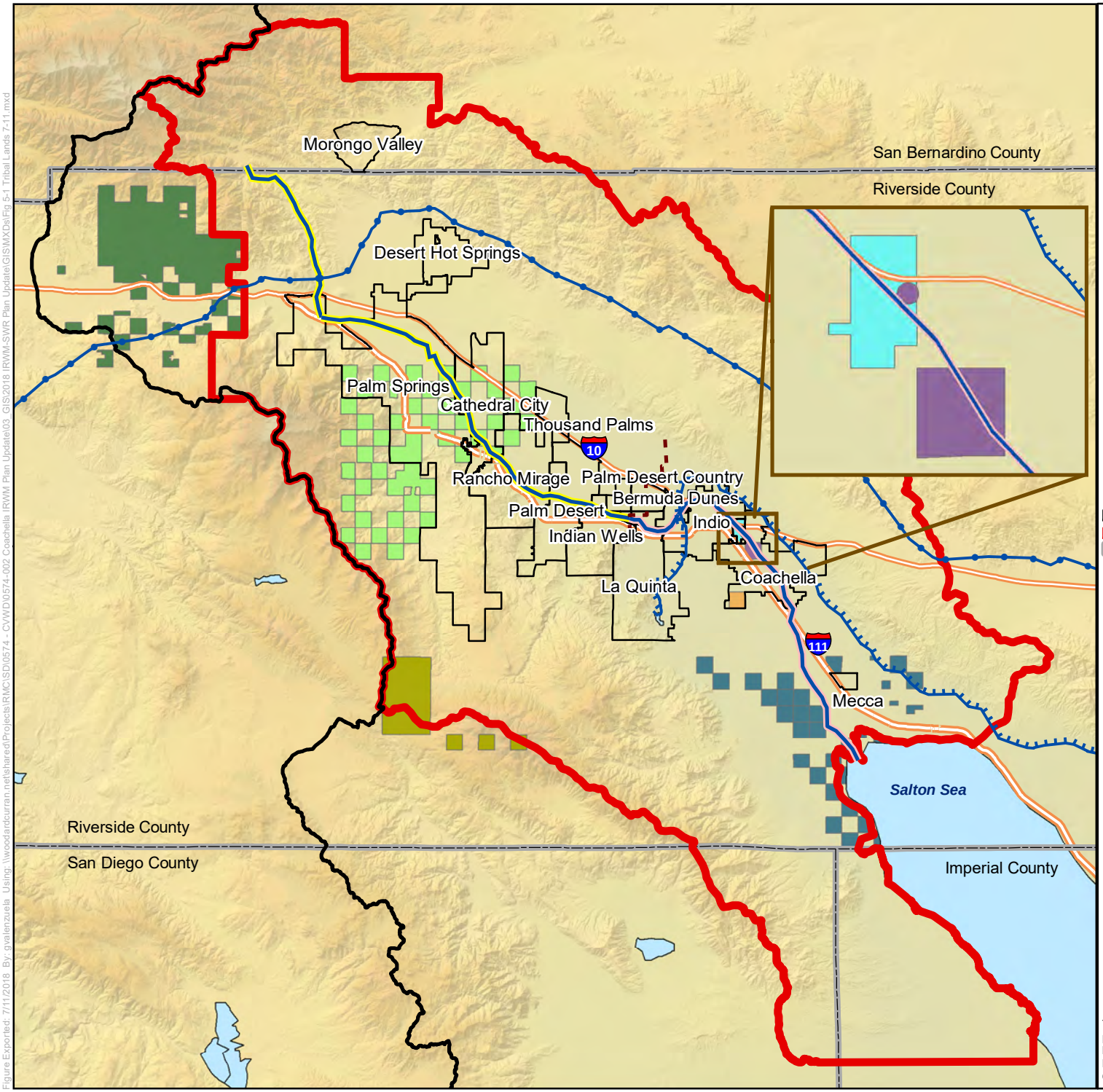
Table 5-1: Tribal Nation Reservations within the Coachella Valley IRWM Region

No.	Name		Ethnology/ Language	Acreage	Population	
	Reservation	Tribal Nation			Tribal Members	On Reservation[1]
1	Agua Caliente Reservation	Agua Caliente Band of Cahuilla Indians	Pass Cahuilla	31,500	504	24,781[2]
2	Augustine Reservation	Augustine Band of Cahuilla Mission Indians	Pass Cahuilla	500[3]	5[3]	5[3]
3	Cabazon Reservation	Cabazon Band of Mission Indians	Cahuilla	1,706[3]	38[3]	800[4]
4	Santa Rosa Reservation	Santa Rosa Band of Cahuilla Indians	Cahuilla	11,000	110	70
5	Torres-Martinez Reservation	Torres-Martinez Desert Band of Cahuilla Indians	Cahuilla	24,024	217	42[5]
6	Twenty-Nine Palms Reservation	Twenty-Nine Band of Mission Indians	Chemehuevi	402	10[6]	-

1. Reservation population may include tribal members and non-members.
2. Based on information obtained from the Tribal Characterization Form submitted by the Agua Caliente Tribe.
3. Based on information available from California Indians and Their Reservations. San Diego State University Library and Information System. n.d. (retrieved 24 Sept 2013).
4. Based on information obtained from the Tribal Characterization Form submitted by the Cabazon Tribe.
5. Does not include non-Tribal residents of mobile home parks on Tribal lands.
6. Based on information available from http://29palmstribe.com/About_us/history.php. Accessed 07/17/2013.

5.1.1 Tribal Autonomy

While Tribal Nations have autonomy over their lands, they are also subject to federal environmental laws and regulations. However, Tribal Nations are not subject to state and local environmental laws and regulations, except for those that are required under compact with the state, and other independent agreements between the Tribal Nations and local agencies. While the state and local governments do not have any authority over Tribal Lands, in a few cases a working relationship exists between the Tribes and local jurisdictions to address water and habitat issues. Example cases are presented in the following sections.



Tribal Lands

Figure 5-1

Legend

- Division between Western and Eastern Coachella Valley
- Colorado River Aqueduct
- Coachella and All American Canals
- Whitewater River Stormwater Channel
- Coachella Valley Stormwater Channel
- Highways
- Water Bodies
- Dry Lakes
- Colorado River Funding Area
- IRWM / SWR Planning Area
- County Lines
- City Boundaries

Tribal Lands

- Agua Caliente Tribal Lands
- Augustine Tribal Lands
- Cabazon Tribal Lands
- Morongo Tribal Lands
- Santa Rosa Tribal Lands
- Torres-Martinez Desert Cahuila Indians
- Twenty-Nine Palms Band of Mission Indians

0 1.75 3.5 7 10.5 14 Miles

N

Map Created: June 2018

Third Party GIS Disclaimer: This map is for reference and graphical purposes only and should not be relied upon by third parties for any legal decisions. Any reliance upon the map or data contained herein shall be at the users' sole risk. **Data Sources: CVRWMG**

Figure Exported: 7/11/2018 By: gvalenzuela Using: \\woodardcurran.net\shared\Projects\IRWC\SD0574 - CVWD0574-002 Coachella IRWM Plan Update\03_GIS\2018 IRWM-SWR Plan Update\GIS\MXDs\Fig 5-1 TribalLands 7-11.mxd

5.2 Developments on Tribal Lands

The Coachella Valley has a semi-arid environment with limited local surface water supply. The Region uses the expansive groundwater basin and imported water (refer to *Chapter 2 Region Description* for more information). These water sources are used for irrigation and recharge. Coachella Valley Water District (CVWD) and Desert Water Agency (DWA) facilitate the majority of surface water deliveries and all the groundwater recharge efforts throughout the Coachella Valley.

As explained in *Chapter 2 Region Description, Section 2.4 Water Supplies and Demand,* demands for water in the Coachella Valley, particularly urban water demands, are projected to increase with population growth. This increase in water demand is partially attributed to the consumptive water use based around the expected growth in gaming and resort facilities within the Coachella Valley. Several gaming facilities have been established on Tribal Reservations since 1988; additionally, some of the Tribes have added resorts, hotels, restaurants, and golf courses to their gaming facilities, all of which increase the demand for water.

The economic benefits of tribal gaming facilities are expected to encourage higher population growth rates at the reservations due to factors such as increased employment opportunities. As such, Tribes work closely with planning agencies to ensure that their growth impacts are accounted for through local planning efforts.

5.3 Tribal Nations Water Resources

A brief description of demographic information, environmental programs, and water resources for each Tribal Nation Reservation is listed below. Information provided below was gathered, in part, from individual meetings with the Tribal Nations through the Tribal Issues Group convened for the development of the 2014 IRWM Plan Update. For more information about the Tribal Issues Group, please refer to *Chapter 7 Stakeholder Involvement.*

5.3.1 Agua Caliente Band of Cahuilla Indians

Established in 1876 by executive order, the Agua Caliente Reservation is home to the Agua Caliente Band of Cahuilla Indians, which is recognized by the United States government as a sovereign nation and is governed by an elected Tribal Council. The Tribe currently has approximately 365 members, employs approximately 2,500 people, and is comprised of smaller groups that were living in the Palm Springs area at the time the reservation was established.

The Agua Caliente Reservation, at more than 31,500 acres, is the largest reservation within the Region. The Tribe operates two casinos, a resort and a 36-hole golf course. The Tribe is planning to develop another resort, a new casino and a cultural center and museum. The Planning and Natural Resources Division of the Tribe's Planning and Development Department provides planning expertise to the Tribe and manages the land and water resources of the reservation. The developed areas of the Reservation are provided water service from DWA and CVWD and wastewater service from the City of Palm Springs and CVWD.

In the early 1900s, the U.S. Indian Irrigation Service took efforts to develop methods of conveyance and negotiate water-sharing agreements between settlers and tribal members. Unfortunately, claims to water were so significant that much of these efforts failed. By 1922, the Division of Water Resources granted the

Tribe partial rights to the Whitewater River system. As a result of these efforts, the Agua Caliente Tribe may divert surface water supplies from Tahquitz Creek, Andreas Creek, and the Whitewater River.

The Agua Caliente Tribe has expressed concern about water rights, transparency in water discussions, and the long-term effect that recharge with Colorado River water might have on groundwater quality. Additionally, the Tribe has noted issues associated with economic hardship in connecting to the sewer system within the Cathedral Cove area of Cathedral City. The Tribe is currently in the process of taking legal action to address concerns with groundwater quality by asking the federal court to characterize the Tribe's reserved right to groundwater.

5.3.2 Augustine Band of Cahuilla Indians

Though formally established as the Augustine Reservation by Congress in 1891, notes from early explorers indicated that the Cahuilla people were flourishing in this area at this time (circa 1820) with 22 villages. One important village, known as "Temal Wakhish," was later surveyed and noted as Cahuilla Village.

Having opened in 2002, the Augustine Casino was the first major enterprise of the Augustine Band of Cahuilla Indians. Funds generated from this venture are dedicated to the community's historical culture and a thriving future. In December 2008, the Augustine Band of Cahuilla Indians established itself as a leader in renewable energy by developing a 1.1-megawatt photovoltaic (solar energy) facility. The project signifies some of the Tribe's major objectives in being both self-sufficient while protecting the Earth's natural resources.

The Augustine Reservation is approximately 500 acres and is in the eastern Coachella Valley within the City of Coachella. The Augustine Tribe relies on its own groundwater wells for water supply. Wastewater from the Reservation is sent to the CVWD wastewater collection system.

The Augustine Tribe has expressed concern over the nature and extent of groundwater overdraft within the Region's groundwater basins, water quality issues including salts in agricultural tail water, and the quality of Colorado River water being used for recharge. The Augustine Tribe has also expressed concern with discharges to the Salton Sea.

5.3.3 Cabazon Band of Mission Indians

Having called the Coachella Valley Desert home for more than 2,500 years, the Cabazon Band of Mission Indians of today are descendants of Chief Cabazon, a heroic leader of the Cahuilla Tribe from the 1830s to the 1870s. Although never conquered by the Spanish missionaries, the European-American settlers referred to this band as "Mission Indians," and the name has since remained.

As one of approximately a dozen independent clans of the Cahuilla, the Cabazon Band claims its own name, territory, and common ancestry. The Cabazon Reservation was created for the 600 tribal members through executive order of President Ulysses S. Grant in 1867. The Cabazon Reservation was originally defined as three parcels totaling 2,400 acres but was later reduced to 1,700 acres as the Southern Pacific Railroad and the U.S. Interstate claimed right-of-way. Today, tribal lands total 1,459 acres across multiple small parcels spread over 16 miles, and tribal membership numbers

less than 50. The Reservation lands are currently 1,706 acres in size and are located adjacent to the cities of Indio, Coachella, and the unincorporated communities of Thermal and Mecca.

The Cabazon Band has a democratic form of government. All tribal members over 18 years of age sit on the General Council (GC) which meets every three months to confer and make decisions on tribal issues. The day-to-day operations have been delegated by resolution to the Tribal Business Committee (TBC). Every four years the GC elects a Tribal Chairman and four tribal members who form the five-member TBC. The TBC oversees all tribal matters and business of the Cabazon Tribe. The TBC serves as governing board of the Cabazon Tribe while the Tribal Chairman oversees the management of the tribal government, business enterprise development, administrative and internal operations. The GC and TBC both participated in the 2014 IRWM Plan Update.

The Tribe operates the local fire department, police station, gaming operation, bowling alley, and the Cabazon Cultural Museum featuring an annual powwow and interactive hands-on exhibits of past and present culture.

Drinking water is supplied to the Cabazon Tribe by Indio Water Authority (IWA). Some of tribal property is connected to sewer systems while tribal housing is on septic systems.

The key water resources issue of concern for the Tribe is that of groundwater quality and recharge with Colorado River water. The Cabazon Tribe is concerned that Colorado River water has deposited perchlorate in the groundwater. They are also concerned about arsenic in the eastern Coachella Valley. The Tribe reports that its wells in the eastern Coachella Valley are less than 800 feet deep (which is relatively shallow) and pump water that is affected by constituents associated with agriculture. The Tribe is experiencing the same flood management issues as its neighbors in the eastern Coachella Valley, and is starting to address these issues internally.

5.3.4 Santa Rosa Band of Cahuilla Indians

Occupying over 11,000 acres of land between Palm Springs and the community of Anza (located southeast of the Coachella Valley); the Santa Rosa Reservation was established by executive order in 1907 and is comprised of four non-contiguous parcels. The Santa Rosa Band of Cahuilla Indians includes 110 recognized tribal members over the age of 18, 70 of whom live on the Reservation.

Although the Santa Rosa Tribe does lie within the western mountains of the Whitewater River Watershed, it does not obtain its water resources from the Region and has chosen not to participate in IRWM/SWR Plan development.

5.3.5 Torres-Martinez Desert Band of Cahuilla Indians

Established in 1876, the Torres-Martinez Reservation has a total area of over 24,000 acres located in the eastern Coachella Valley. Named for the early village of Toro and the Martinez Indian Agency, the modern Torres-Martinez Band takes their name from the Reservation and has approximately 90 members.

The Tribe's autonym is "Mau-Wai-Mah Su-Kutt Menyil", which means among the palms, deer and moon. Their tribal symbol captures the essence of this phrase and represents the culture and land of the Cahuilla people.

The Torres-Martinez Tribe is the largest private landowner in and around the Salton Sea. In 2002, the Tribal Council decided to take a proactive approach to the Salton Sea's declining shoreline. The Salton Sea is predicted to be reduced by 50% as a result of decreased flows to the sea from the Imperial and Coachella Valleys. Currently, the Torres-Martinez Tribe is facilitating a shallow wetlands pilot project funded by the U.S. Bureau of Reclamation (USBR), U.S. Environmental Protection Agency (USEPA) and various agencies. The pilot project is located near the mouth of the Coachella Valley Stormwater Channel (CVSC), is 85 acres in size, and consists of seven water quality cells and four habitat ponds that were designed to improve the quality of water entering the Salton Sea through biofiltration. The seven water quality treatment cells remove nutrients and pollutants from agricultural drain water from the CVSC; the treated water is then blended with water from the Salton Sea and ultimately flows to four habitat ponds located near the Salton Sea. The purpose of the project is to provide additional wetland habitat as the Salton Sea recedes (CVWD 2012).

The major water resources issues the Tribe is facing is lack of flood protection, lack of adequate water and sewer infrastructure, stormwater and sewer capacity issues in Salton City, and groundwater quality. The Tribe is concerned with the water quality associated with recharge operations upgradient of their groundwater wells and has named total dissolved solids (TDS) and ammonimum perchlorate to be of particular concern. The Tribe reports that groundwater wells on the tribal lands are very close to recharge facilities and located at shallow depths, making them potentially impacted by the difference in water quality of recharge water supplied by the Colorado River water. The Tribe is also concerned with flooding from the Oasis Slope and is working with the U.S. Army Corps of Engineers (USACE) who is providing modeling support, but still needs additional funding to address flooding issues.

The CVRWMG has worked directly with the Torres-Martinez Tribe to address the issue of adequate water supply infrastructure, and included a project to provide preliminary design and engineering support for a potable water pipeline to Torres-Martinez tribal lands in the Region's Proposition 84-Round 2 Impementatoin Grant. The design and engineering work completed through this project will make the Torres-Martinez Tribe potentially eligible to receive additional funding support by federal agencies such as the United States Department of Agriculture to complete construction of a water supply pipeline to the Tribe's Avenue 64 Housing Subdivision. As part of the Torres-Martinez Tribe's involvement in the IRWM Program, the Tribe has adopted the 2010 Coachella Valley IRWM Plan.

5.3.6 Twenty-Nine Palms Band of Mission Indians

The Twenty-Nine Palms Reservation was established in 1895 and occupies 402 acres of two geographically separate sections. The Twenty-Nine Palms Band of Mission Indians originated from the Chemehuevi nomadic Tribe, who are said to have settled in the Twenty-Nine Palms area in 1867. Initially, the Chemehuevis lived at the Oasis of Mara, but as settlers moved to the area they lost much of their land due to being overlooked by federal agents and surveyors. The official survey of the Reservation has left the Tribe with the 402 acres of the original 640 acres granted to them.

The Twenty-Nine Palms Tribe uses City of Coachella/Coachella Water Authority (CWA) water and sewer services. The Tribe also monitors local groundwater wells and is willing to share groundwater data with CVWD as part of a data exchange agreement. Environmental protection programs on the Twenty-Nine Palms Reservation are run by the Twenty-Nine Palms Band of Mission Indians Tribal Environmental Protection Agency, which was established in partnership with the USEPA in 1997. The water resources issues the Tribe has expressed concern over are maintaining groundwater quality and groundwater quantity.

5.4 Status of Water Management on Tribal Lands

Water Management Planning in the Coachella Valley considers identified tribal issues and needs. These points were taken into consideration by the CVRWMG as part of the IRWM/SWR Plan Update process, of which the tribes have been a longstanding participant.

This section focuses on the status of the dialogue surrounding tribal water resources concerns and tribal water monitoring activities in the Region's groundwater basins. A summary of regional water issues can be found within *Chapter 3 Issues and Needs, Section 3.1 Coachella Valley Issues and Needs*.

5.4.1 Tribal Water Resources Concerns – Status of Discussions

Tribal Nations within the Coachella Valley are located on lands located primarily within municipal service areas of the CVRWMG agencies, and water and sewer services are generally provided by the agencies. As expressed in various public comment letters on the 2002 Coachella Valley Water Management Plan (WMP), 2010 Coachella Valley WMP Update and Subsequent Program Environmental Impact Report (SPEIR), the 2010 IRWM Plan, and the legal action summary from the Agua Caliente Tribe, the Tribes are concerned about water rights, quantity and quality of local groundwater supplies, and the role of Tribal Nations within the Coachella Valley IRWM Program. The Agua Caliente Tribe is currently taking legal action to address these issues and has filed a complaint for declaratory and injunctive relief (Complaint Case Number 13-00883 filed May 14, 2013). Below are brief summaries of the tribal water resources concerns and the status of those concerns as they relate to this 2018 IRWM/SWR Plan.

Water Rights

Regarding water rights (both surface water and groundwater); the Tribes have commented that planning documents such as the 2010 IRWM Plan and the 2010 Coachella Valley WMP Update do not properly acknowledge or include principles associated with tribal water rights.

For purposes of this 2018 IRWM/SWR Plan, the issue of tribal water rights is acknowledged as a tribal issue within this chapter and within *Chapter 3 Issues and Needs.* However, as with the 2014 IRWM Plan, the 2018 IRWM Plan Update does not include information about any entity's water rights; therefore, the inclusion of tribal rights within the IRWM/SWR Plan is limited to issues as expressed by tribal entities.

Quality of Local Groundwater Supplies

Tribal Nations have expressed concern about the long-term effect of regional groundwater recharge operations on groundwater quality. Specific concerns have been raised by the Tribes regarding the salinity of imported water that is used for groundwater recharge as well as other constituents potentially within groundwater such as arsenic, hexavalent chromium, and ammonium perchlorate.

Given that the IRWM/SWR Plan is an umbrella planning document, it includes a synthesis of information from adopted planning documents as well as input from stakeholders. Issues surrounding water quality as expressed either in planning documents or by stakeholders are discussed in *Chapter 3 Issues and Needs* of the IRWM/SWR Plan. Throughout *Chapter 3 Issues and Needs* source documents are used to substantiate and support various claims made by stakeholders. For this reason, the IRWM/SWR Plan acknowledges that salinity in the Region's groundwater basins have increased, but that salinity levels are below regulatory limits such as Maximum Contaminant Levels (MCLs) established for drinking water. Furthermore, the IRWM/SWR Plan acknowledges that arsenic, ammonium perchlorate, hexavalent chromium, and other

constituents are of concern within the Coachella Valley either due to stakeholder-based concerns or due to regulatory concerns associated with establishing MCLs for these constituents. Arsenic and hexavalent chromium are naturally occurring in the geologic formations of some areas of the Coachella Valley, and no evidence suggests that Colorado River water is the source of existing detections. Moreover, perchlorate in Colorado River water has been remediated at the source (CVWD 2012). Lastly, the IRWM/SWR Plan acknowledges economic concerns associated with various proposed water quality control measures; this issue is of importance to the IRWM/SWR Plan as maintaining affordable water in the Coachella Valley is a regional objective that has been highly-ranked by IRWM stakeholders (refer to *Chapter 6 Objectives*).

Quantity of Local Groundwater Supplies

Tribal Nations in the Region have expressed concerns about groundwater quantity, and in particular have expressed concerns about long-term groundwater overdraft in the Coachella Valley.

Chapter 3 Issues and Needs of the IRWM/SWR Plan includes information about groundwater overdraft and explains the various water management efforts being undertaken within the Region to eliminate overdraft conditions. As explained further in *Chapter 11 Framework for Implementation,* projects are being implemented through the IRWM Program to address groundwater overdraft through efforts that would reduce groundwater pumping through in-lieu groundwater recharge and expanded use of non-potable water resources within the Region.

Tribal Nations and Participation in the IRWM Program

During the 2010 IRWM Plan process, Tribal Nations were organized into a Tribal Issues Group and convened as a singular group to address tribal issues pertaining to water resources (refer to *Chapter 7 Stakeholder Involvement*). During the public comment period for the 2010 IRWM Plan, the CVRWMG received feedback from various Tribal Nations that aggregating the tribes into a singular Issues Group was not preferable, and that the tribes would prefer to be engaged individually such that the interests and needs of each Tribal Nation could be understood and reflected in the IRWM/SWR Plan. In response to these concerns, the CVRWMG engaged with staff from the Region's Tribal Nations on a one-on-one basis in 2012 during outreach activities conducted to update the 2010 IRWM Plan. The CVRWMG will continue to complete outreach to the Region's Tribal Nations to ensure that each tribe's interests and needs are accurately reflected in the IRWM/SWR Plan.

5.4.2 Tribal Water Quality Monitoring Activities

Most Tribes in Coachella Valley have environmental staff that conduct surface water quality and groundwater quality and level monitoring. The data collected by the Tribes are submitted to USEPA and are available for download through USEPA's Storage and Retrieval (STORET) Data Warehouse. The STORET is a repository for water quality, biological, and physical data. As of January 15, 2014, data from the Twenty-Nine Palms Band of Mission Indians are available for download on STORET, with additional data from the Morongo Band of Mission Indians (outside, but adjacent to, the Region) are also available on STORET. These data include water quality and monitoring well locations.

5.5 Tribal Participation in Water Resources Planning

Water resources planning efforts are being conducted at local, regional and state levels in California. At the state level, development of the *California Water Plan* is at the forefront of statewide water resources planning. At the regional level, IRWM Plans are being developed by regional coalitions of water suppliers

and other interested stakeholders, including Native American Tribes. At the local level, water and groundwater management plans lay the groundwork for water resources infrastructure development. Inclusion of tribal communities by the planning agencies and active participation of the tribes in these planning efforts are necessary and have been increasing over the last decade.

5.5.1 California Water Plan

The *California Water Plan Update 2009* suggests that the State government should have a leadership role in coordinating the water management activities of federal, Tribal, regional, and local governments and agencies and developing stable methods for financing water management actions. Based on *California Water Plan*'s guiding principles, DWR is expected to use science, best data, and local and indigenous people's knowledge in a transparent and documented process. One of the objectives of the *California Water Plan* is to improve Tribal water and natural resources. DWR aims to improve the overall quality and comprehensiveness of the IRWM/SWR Plan by building upon the relationships between the state agencies and the Tribes. The objectives of engaging California Native American Tribes include, in part, the following:

- Address the complex Tribal water issues
- Integrate Tribal information and perspectives
- Educate water professionals about Tribal water issues
- Increase Tribal engagement in water planning

The *California Water Plan Update 2013* has established a Water Plan Tribal Advisory Committee to accomplish the above objectives and develop a forum for Tribes to review and comment on the IRWM/SWR Plan. Representatives of the Cabazon and Morongo Tribes are members of the Tribal Advisory Committee.

The third statewide California Tribal Water Summit was held on April 4-5, 2018 in Sacramento. The summit addressed indigenous water rights and reviewed the previous summit accomplishments and explored further partnerships to address Tribal water policy needs and strengthened shared understanding of policy impacts on Tribal communities.

5.5.2 Coachella Valley IRWM Program

*This section complies with the **Organization, Coordination, Collaboration** requirements for the SWRP by highlighting the community participation provided for in IRWM/SWR Plan development.*

Senate Bill 1672, in 2002, created the IRWM Act to "encourage local agencies to work cooperatively to manage their available local and imported water supplies to improve the quality, quantity, and reliability of those supplies". Over the past decade, DWR has developed the IRWM Program into a statewide program consisting of more than 45 IRWM regions covering most of California's land and population. DWR, through the financial and technical assistance, has encouraged the IRWM regions to move toward water resources management at watershed or regional scales and incorporate statewide priorities into their

regional plans. One of the eight statewide priorities of the IRWM Program is to "Improve Tribal Water and Natural Resources".

The CVRWMG has sought to implement this statewide priority at the local level by conscientiously engaging the Tribes in the 2014 IRWM Plan Update with continued input through Planning Partners meeting in the 2018 Update. The CVRWMG has reached out to tribal representatives individually through one-on-one meetings with tribal staff and through the Planning Partners meetings and communications. As described in *Chapters 1 Coachella Valley Tribes* and *5 Tribal Participation in Water Resources Planning*, the Coachella Valley's tribal governments were engaged through an outreach program to better understand their critical water resources issues and needs. Several meetings were held with representatives of each one of the tribes to obtain each tribe's input, concerns and needs. The Coachella Valley Tribes are also Planning Partners and played a valuable role in shaping the key elements of the IRWM Plans (original plan, and subsequent updates). The Native American Tribes Issues Group was established in 2010 to identify water related issues and needs related to the Coachella Valley's Tribes. Its members consisted of representatives of the tribes and local, regional and state offices of the U.S. Bureau of Indian Affairs. While tribal members have indicated that convening a separate Issues Group is no longer necessary (attendance at the Planning Partners meetings would suffice), additional targeted communications via email and phone have been continued. Tribes, as members of the Planning Partners, have continued to attend Planning Partners meetings and have provided feedback in the process of developing of this IRWM/SWR Plan, including the prioritization of benefits for stormwater projects as part of a workshop exercise. This chapter is based on those communications.

5.5.3 Local Water Management Plans

As explained in *Chapter 10 Agency Coordination, Section 10.2 Relation to Local Water Planning,* the IRWM/SWR Plan is consistent with and reflects the technical assessments and conclusions provided within the local water management plans. The technical evaluations of these plans provided a basis for establishment of the regional priorities. Several of these local management planning processes – namely the Coachella Valley WMP, Mission Creek-Garnet Hill WMP, and Urban Water Management Plans (UWMPs) – all included outreach to and coordination with the relevant tribes.

Page intentionally left blank.

6 Objectives

Integrated Regional Water Management (IRWM) Standards: *This chapter addresses the* ***Objectives Standard*** *and establishes which regional conflicts and water management issues the IRWM Plan is designed to address.*

Stormwater Resource (SWR) Plan Requirements: *This chapter describes the Stormwater objectives for the Planning Area as well as the multiple stormwater benefits and their prioritization in the Region.*

This section identifies the goals and objectives of the Coachella Valley IRWM/SWR Plan and establishes planning targets that can be used to gauge our success in meeting the objectives for the Coachella Valley IRWM Region (Region). The goals and objectives are based on regional issues and needs that are discussed in detail in *Chapter 3 Issues and Needs. Chapter 7 Resource Management Strategies* and *Chapter 9 Project Evaluation and Prioritization* outline how the Region will be accomplishing the objectives described in this section. Those resource management strategies (RMSs) and projects are expected to be more effective to the extent to which they can accomplish more than one objective as they are implemented.

This section also includes critical information related to benefits of stormwater projects and the prioritization of those benefits in the Region (*Section 6.3 Stormwater Resource Plan Benefits Prioritization*).

In this section, and in the IRWM/SWR Plan, we use the following nomenclature related to what we are trying to achieve as a region and how we will measure the level of achievement:

- *Goals*: overarching statement of purpose aligned with a mission and vision of agencies involved in water resources management in the region.
- *Objectives:* specific statements about what we are trying to achieve. In the hierarchy of management and decision-making, several objectives can be aligned under a specific goal.
- *Targets:* measurable and tangible activities, programs and projects to achieve the objectives.
- *Measurements:* the metrics that we account for to define how well we are achieving the objectives.
- *Stormwater Project Benefits:* consistent with the *2015 SWRP Guidelines*, the benefits are ranked on "main" and "additional" and refer to the positive outcomes that result from the implementation of specific projects.

6.1 Goals and Objectives

This section presents the IRWM/SWR Plan intent, goals, and objectives, and then explains the collaborative process and tools used to establish objectives.

When the Coachella Valley Regional Water Management Group (CVRWMG) established the Coachella Valley IRWM program in September 2008, CVRWMG members articulated the following overall intent:

> *"3.1.1 This Memorandum of Understanding (MOU) is to memorialize the intent of the Partners to coordinate and share information concerning water supply planning programs and projects and other information, and to improve and maintain overall communication among the Partners involved. It is anticipated that coordination and information sharing among the Partners will assist the agencies in achieving their respective missions to the overall well-being of the region"* (see **Appendix VI-C**).

Through input and discussion by the CVRWMG, Planning Partners, and other stakeholders, five regional goals were established for this IRWM/SWR Plan. The order in which these goals are listed does not represent ranking or relative importance.

IRWM/SWR Plan Goals

1. Optimize water supply reliability,
2. Protect or improve water quality,
3. Provide stewardship of water-related natural resources,
4. Coordinate and integrate water resource management, and
5. Ensure cultural, social, and economic sustainability of water in the Coachella Valley.

Through a series of facilitated public workshops and meetings, the CVRWMG, Planning Partners, and stakeholders developed thirteen specific IRWM/SWR Plan objectives to accomplish the five broad IRWM/SWR Plan goals. Detailed descriptions of each of the objectives are presented in the following sections along with the rationale for development and inclusion of each objective. The order in which these objectives are listed does not represent ranking or relative importance.

IRWM/SWR Plan Objectives

A. Provide reliable water supply for residential and commercial, agricultural community, and tourism needs.
B. Manage groundwater levels to reduce overdraft, manage perched water, and minimize subsidence.
C. Secure reliable imported water supply, including restoring/improving reliability of State Water Project supply and securing other imported water supplies.
D. Maximize local supply opportunities, including water conservation, water recycling and source substitution, and capture and infiltration of runoff.
E. Protect groundwater quality and improve, where feasible.
F. Preserve and improve surface water quality by maintaining integrity of agricultural drainage systems, protecting the quality of natural runoff used for potable supply, and reducing pollution in stormwater runoff.
G. Preserve the water-related local environment and restore, where feasible.
H. Manage flood risks, including current acute needs and needs for future development.

I. Optimize conjunctive use of available water resources.
J. Maximize stakeholder involvement and stewardship in water resource management.
K. Address water-related needs of local Native American culture.
L. Address water and sanitation needs of disadvantaged communities (DACs), including those in remote areas.
M. Maintain affordability of water.

Stormwater is a key component of several of the Region's objectives and is related to several more through to the multiple benefits stormwater projects can provide. *Section 6.3 Stormwater Resource Plan Benefits Prioritization* discusses the different stormwater benefits in more detail and summarizes their prioritization in the Region. These benefits include:

- Providing local supplies through stormwater capture and infiltration to the groundwater basin
- Improving groundwater quality through groundwater recharge with a cleaner water source
- Improving surface water quality by reducing polluted runoff
- Improving habitat by protecting natural recharge areas
- Reducing flood risk by capturing stormwater during high flows
- Improving community involvement through outreach and education for stormwater projects.

Although it is not stated explicitly, *the need to address the identified vulnerabilities to* ***climate change*** *in the Region is embedded in many of these objectives as an overarching theme of the plan*. The vulnerability matrix that identifies vulnerabilities specific to the Region is included in *Chapter 3 Issues and Needs, Section 3.2.3 Vulnerability Analysis*. The plan objectives address the state-wide climate change adaptation and mitigation requirements identified in the *Proposition 1 2016 IRWM Program Guidelines* as well as greenhouse gas (GHG) emission reduction goals in for the water sector stated in the California Air Resources Board (CARB) *AB 32 Scoping Plan*. **Table 6-1** shows which plan objectives meet each of the climate change adaptation or mitigation requirement or GHG reduction goals.

Table 6-1: Climate Change Requirement and Corresponding Plan Objective

Climate Change Adaptation/Mitigation Requirement	Plan Objective(s)
Address adapting to changes in the amount, intensity, timing, quality and variability of runoff and recharge.[1]	B, C, D, F, H, I
Consider the effects of sea level rise on water supply conditions and identify suitable adaptation measures. [1,3]	A, B, C, D, I
Reduce energy consumption, and ultimately reduce GHG emissions, by developing and supporting programs and projects that increase water sector energy efficiency. [1,2]	A, D, I
Consider options for carbon sequestration and using renewable energy to pump, convey, treat, and utilize water where such options are integrally tied to supporting plan objectives. [1,2]	D, G
Develop and support more reliable water supplies for people, agriculture, and the environment, provided by a more resilient, diversified, sustainable managed water resources system with a focus on actions that provide direct GHG reductions. [2]	A, D, I
Make conservation a California way of life by using and reusing water more efficiently through greater water conservation, drought tolerant landscaping, stormwater capture, water recycling, and reuse to help meet future water demands and adapt to climate change. [2]	D
Reduce the carbon footprint of water and water uses for both surface and groundwater supplies through integrated strategies that reduce GHG emissions while meeting the needs of a growing population, improving public safety, fostering environmental stewardship, aiding in adaptation to climate change, and supporting a stable economy. [2]	A, D, I

1. Climate change adaptation and mitigation requirement from the *Proposition 1 2016 IRWM Program Guidelines*.
2. GHG reduction goal for the water sector from the CARB *AB 32 Scoping Plan.*
3. Sea level rise will not impact the Region directly as it is an inland region. However, as the Region contains SWP contractors, sea level rise will indirectly impact the Region through decreased reliability of SWP deliveries due to impacts to the Sacramento-San Joaquin Delta.

6.1.1 Determining Objectives

The process for developing objectives for the Coachella Valley IRWM/SWR Plan relied heavily on public input and was based on a succession of public workshops and meetings that took place in 2010, and again in 2013. The information from these sessions is synthesized in *Chapter 3 Issues and Need, Chapter 4 Disadvantaged Communities,* and *Chapter 5 Tribal Water Resources.* Specifically, a summary of significant water management issues facing the Region can be found in **Table 3-2**. Following stakeholder input from 2010, 2013, and 2018, the objectives of this 2018 Coachella Valley IRWM/SWR Plan remain the same with the addition of specific water quality compliance objectives required for the SWRP and the definition of the relative importance of benefits to achieve with stormwater projects (*Section 6.3 Stormwater Resource Plan Benefits Prioritization*).

The IRWM/SWR Plan goals and objectives are developed based on the major issues identified during the CVRWMG, Planning Partners, and stakeholder meetings. Five breakout groups were created to identify, discuss, and prioritize the various water resource issues in the Coachella Valley during a June 2010 Public Workshop (see **Appendix VI-D**).

Based on identified water resource issues, the goals and objectives were established for the IRWM Program and later verified for the SRWP. Each of the objectives addresses multiple issues raised by the Region's stakeholders and is consistent with CWC §10540(c).

In addition, the 2014 Coachella Valley IRWM Plan Update process included a prioritization exercise, during which Planning Partners were asked to prioritize the verified IRWM/SWR Plan objectives. Information regarding the prioritization process is discussed in *Section 6.2 Prioritization Objectives*.

Objective A: Provide reliable water supply for residential and commercial, agricultural community, and tourism needs.

The focus of this objective is to meet the requirements of Goal 1 (optimize local water supply reliability). The Coachella Valley's 444,500 residents and $526M agricultural economy are both dependent on a reliable water supply. Additionally, regional growth forecasts project that water demands within the region are expected to increase despite conservation efforts (see **Figure 3-1** in *Chapter 3 Issues and Needs, Section 3.1.1 Water Demand*). Adequate water supplies must be identified for all sectors of the Coachella Valley economy, including residential and commercial, agricultural, and tourism needs. Emphasizing local solutions that increase reliability would potentially reduce future additional demand for imported water supply from the Sacramento-San Joaquin Delta by encouraging development of other, more reliable sources of water. Local supply development and water use efficiency measures helps to address potential climate change impacts currently forecasted by the California Department of Water Resources (DWR) on Bay Delta supplies, particularly if a California Water Fix is not implemented in a timely manner, or not implemented at all. Additionally, local supplies are likely to have a lower energy intensity than imported supplies, resulting in GHG emission overall reductions.

Objective B: Manage groundwater levels to reduce overdraft, manage perched water, and minimize subsidence.

The focus of this objective is to meet the requirements of Goal 1 (optimize local water supply reliability). Groundwater levels must be managed in order to curb land subsidence and associated permanent loss of groundwater storage capacity. Further, groundwater overdraft exacerbates salinity issues associated with Salton Sea and perched water intrusion. As groundwater is the Coachella Valley's primary water supply source, it is essential that the Coachella Valley's water managers work together to manage regional groundwater conditions. Improving groundwater sustainability in the Coachella Valley will improve the reliability of local water supplies that, in many cases can help mitigate forecasted impacts on surface and imported supplies by climate change. Stormwater capture for recharge is one method that can be used to mitigate demands on the groundwater basin and improve management of groundwater levels.

Objective C: Secure reliable imported water supply, including restoring/improving reliability of State Water Project supply and securing other imported water supplies.

The focus of this objective is to meet the requirements of Goal 1 (optimize local water supply reliability). As documented in the *California Water Plan 2013 Update* (DWR 2013), water allocation, environmental, and hydrologic constraints present significant challenges to the sustainability of historic State Water Project (SWP) Allotment and Colorado River supplies, particularly during long-term droughts. In order to serve projected growth while limiting groundwater overdraft, new or expanded imported water supplies must be secured for the Coachella Valley. This objective aims at securing reliable (non-SWP Allotment) imported water supplies and/or encouraging the Region to engage in water transfers that would potentially reduce additional dependence on Sacramento-San Joaquin Delta water supplies. Diversifying water supply will also increase supply reliability despite anticipated increases in runoff variability due to climate change.

Objective D: Maximize local supply opportunities, including water conservation, water recycling and source substitution, and capture and infiltration of runoff.

The focus of this objective is to meet the requirements of Goal 1 (optimize local water supply reliability). Diversification of regional water portfolios is a key element of this IRWM/SWR Plan. Water conservation (reducing water demand and use) is the Coachella Valley's most cost-effective option and is therefore a central component of the Region's diversification program. To meet the State's water conservation goals of reducing water use by 20% by the year 2020, all five public water purveyors, as well as other small mutual water companies, are implementing water conservation measures. The CVRWMG agencies are also focusing on expansion of recycled water systems, source substitution, desalination of semi-perched brackish groundwater, and storm water capture and reuse. Stormwater capture and infiltration projects can help recharge groundwater levels to increase supply reliability, promote conjunctive use, and provide additional benefits that meet other regional objectives related to flooding and water quality. Maximizing local supply opportunities is the primary climate change adaptation strategy being employed by the CVRWMG. Source substitution will also help the CVRWMG mitigate potential climate change by reducing energy consumption, especially the energy embedded in water use, and ultimately reduce GHG emissions. Local supply opportunities that utilize renewable energy will be prioritized where feasible, further reducing GHG emissions. Increasing local supply opportunities would also potentially reduce the need for future additional imported water supply from the Sacramento-San Joaquin Delta.

Objective E: Protect groundwater quality and improve, where feasible.

The focus of this objective is to meet the requirements of Goal 2 (protect water quality). Groundwater quality has historically been of high enough quality to meet all federal drinking water standards without treatment. However, possible issues on the horizon include nitrates leaching from septic systems that are failing or above recommended densities, and arsenic and chromium-6 levels. Compliance with the Colorado River Region Basin Plan (Basin Plan) groundwater quality objectives (taste and odors, bacterial indicators, chemical and physical quality, brines, and radioactivity) and development of the comprehensive Salt and Nutrient Management Plan (SNMP) prepared by Coachella Valley Water District (CVWD), Indio Water Authority (IWA), and Desert Water Agency (DWA) are both vital for maintaining existing beneficial uses. As the Coachella Valley's primary water supply source, it is essential that the Coachella Valley's water managers work together to manage regional groundwater quality. Stormwater capture for recharge can be used to help dilute groundwater supplies with a cleaner water source. Climate change impacts may include increased demands, and changes in the magnitude and patterns of precipitation that naturally replenish the aquifer. Water quality, as the result of the balance of water and solutes in it, could be affected by impacts in demand, pumping and natural replenishment. Managing quality will include monitoring as part of the SNMP and Sustainable Groundwater Management Act (SGMA) efforts, and the information collected can be used as the basis to take adaptive management actions and trigger projects and programs to comprehensively develop supplies not only on the basis of yield, but also on the basis of their benefits or impacts to groundwater quality.

Objective F: Preserve and improve surface water quality by maintaining integrity of agricultural drainage systems, protecting the quality of natural runoff used for potable supply, and reducing pollution in storm water runoff.

The focus of this objective is to meet the requirements of Goal 2 (protect water quality). Multiple surface water quality issues challenge the Coachella Valley's water managers, including the salinity of agricultural

drainage, sedimentation and erosion of natural waterways, and non-point source pollution in storm water runoff. Although existing regulatory programs control pollutants and limit potential impacts on the Region's drainage system through a broad range of point and non-point source programs, poor water quality conditions in some areas still challenge the region's water managers. Compliance with Basin Plan surface water quality objectives (aesthetics, tainting substances, toxicity, temperature, pH, dissolved oxygen, suspended solids, total dissolved solids (TDS), bacteria, bio-stimulatory substances, sediment, turbidity, radioactivity, chemical constituents, and pesticide wastes) is vital for maintaining existing beneficial uses. As documented in *Chapter 2 Region Description*, surface water quality within the Coachella Valley is generally considered good with the exception of the lower 17-mile reach of the Coachella Valley Storm Water Channel (CVSC), which does not currently attain water quality standards related to dichlorodiphenyltrichloroethane (DDT), dieldrin, polychlorinated biphenyls (PCBs), pathogens, and toxaphene. Addressing bacteria exceedances with established total maximum daily loads (TMDLs) and other pollutants causing impairments in the CVSC is a priority for the Region. Protecting and maintaining the Region's surface water bodies is critical to both meeting future water demands and maintaining functioning ecosystems. Changes in precipitation (magnitude and patterns) are forecasted under climate change conditions, particularly late in the century. There is no clear trend for the changes (with some models and scenarios predicting more rain and some predicting less), but there is strong agreement that hydroclimatic changes will occur. Monitoring that will take place under water quality compliance programs and SGMA, including monitoring requirements associated with National Pollutant Discharge Elimination System (NPDES) permits and waste discharge requirements (WDRs), and California Statewide Groundwater Elevation Monitoring Program (CASGEM) groundwater leveling monitoring requirements, will be useful to determine trends in surface flows and their temporal distribution, to be able to take actions to adapt to any significant changes.

Objective G: Preserve the water-related local environment and restore, where feasible.

The focus of this objective is to meet the requirements of Goal 3 (provide stewardship of our water-related natural resources). The Coachella Valley features important desert and riparian habitats. Native habitats may be subject to impacts or stress from invasive species, water quality degradation, or groundwater overdraft. Ecosystem protection and restoration activities associated with water management should focus on the riparian habitats along the CVSC as well as habitat areas identified in the Coachella Valley Multiple Species Habitat Conservation Plan (CVMSHCP). Stormwater capture, treatment, and/or reuse projects can improve protection and enhance riparian habitats, improve instream flow conditions, provide additional urban green space, provide carbon sequestration, reestablish natural hydrographs, and improve water temperatures, all of which can also reduce the impacts of climate change by allowing the ecosystem to function effectively (protecting the adaptive capacity of the natural systems). For more information about the CVMSHCP, please refer to *Chapter 2 Region Description.*

Objective H: Manage flood risks, including current acute needs and needs for future development.

The focus of this objective is to meet the requirements of Goal 3 (provide stewardship of our water-related natural resources). Several areas in the Coachella Valley currently lack flood control facilities and are vulnerable to devastating alluvial and riverine flooding. Current regulations require that new developments mitigate their incremental increase in surface runoff and provide retention basins where necessary. A Stormwater Management Plan was completed by the Whitewater River Region MS4 Permittees in 2014 (revised in 2015) to manage flood risks, and regional efforts have mitigated or prevented many flood risks.

However, without the substantial mitigation measures and plans that have been implemented in the Region, future growth and development throughout the Coachella Valley may increase the volume and duration of storm water runoff due to the increased amount of impermeable surfaces, which may exacerbate flood risks in undeveloped areas. Stormwater capture and infiltration projects can reduce runoff rate and/or volume thereby decreasing flood risk. Floodplain management is particularly critical as it relates to the ability of the Region to adapt to possible climate change impacts associated with storm frequency and intensity. As mentioned in Objective F, forecasts differ in terms of the potential changes to precipitation magnitude and patterns. Strategies that include monitoring will be useful in adapting to potential changes.

Objective I: Optimize conjunctive use of available water resources.

The focus of this objective is to meet the requirements of Goal 4 (coordinate and integrate water resource management). Conjunctive use involves closer coordination between imported surface water supply and other supply sources, including groundwater, recycled water, stormwater, and flood flows. Optimizing conjunctive use will contribute to meeting future water demands, while combating challenges associated with supply unreliability and/or climate change. Optimizing conjunctive use will also contribute to possible climate change adaptation by more efficiently managing water supply and, therefore, reducing associated energy use and GHG emissions. In addition, by improving efficiency through conjunctive use, the Region could potentially reduce future additional demand for imported water from the Sacramento-San Joaquin Delta.

Objective J: Maximize stakeholder involvement and stewardship in water resource management.

The focus of this objective is to meet the requirements of Goal 4 (coordinate and integrate water resource management). The CVRWMG seeks to establish a stakeholder-driven process for water resources management and this objective encourages that paradigm throughout individual IRWM/SWR projects. Maximizing stakeholder involvement and stewardship is essential to the Coachella Valley IRWM/SWR Plan implementation because it provides a forum for addressing stakeholder concerns and ensuring regional support for proposed solutions. This is particularly true for stormwater capture projects that interact with public use areas and provide community benefits by enhancing or creating recreational spaces. Public education and outreach at community events, public workshops, and school-based educational programs are necessary in order to promote awareness and support for management of the Coachella Valley's water resources.

Objective K: Address water-related needs of local Native American culture.

The focus of this objective is to meet the requirements of Goal 5 (ensure cultural, social, and economic sustainability of water in Coachella Valley). As described in *Chapter 3 Issues and Needs, Section 3.1.9 Tribal Nations*, key issues on tribal lands include lack of adequate water and wastewater infrastructure, particularly in eastern Coachella Valley. The Coachella Valley's tribes are also concerned with protection of culturally-significant native plant species and habitats, as well as culturally-significant water resources on tribal lands (such as groundwater).

Objective L: Address water and sanitation needs of disadvantaged communities, including those in remote areas.

The focus of this objective is to meet the requirements of Goal 5 (ensure cultural, social, and economic sustainability of water in Coachella Valley). As described in *Chapter 3 Issues and Needs, Section 3.1.8 Disadvantaged Communities*, affordability of water supply and wastewater treatment are key issues for disadvantaged communities (DACs). Further, groundwater quality in some areas does not meet water quality standards for constituents of concern, or constituents of emerging concern, such as arsenic and chromium 6. If the balance of the groundwater and surface water potentially changes with climate change, the needs of DACs may be increased. The primary issue identified by DAC stakeholders through the DAC Outreach Program (refer to *Chapter 4 Disadvantaged Communities*) is lack of access to public infrastructure and lack of funding necessary to expand infrastructure, especially to low-density rural communities such as those located in the eastern Coachella Valley.

Objective M: Maintain affordability of water.

The focus of this objective is to meet the requirements of Goal 5 (ensure cultural, social, and economic sustainability of water in Coachella Valley). Water affordability is a concern for all Coachella Valley residents and has been noted as a key concern of DACs and tribes, namely in terms of the capital costs associated with extension of municipal services to remote areas. Further, the Coachella Valley's water purveyors struggle with the costs associated with implementing recycled water systems, maintaining existing infrastructure, and developing new water supplies. Despite costs associated with water supplies and potential regulatory and legal issues that could impact water affordability, the CVRWMG agencies seek to maintain affordability of water for Coachella Valley residents.

6.1.2 Describing the Process

A collaborative process was used to establish the Coachella Valley IRWM Plan goals and objectives in 2010. The process of identifying and developing regional goals and objectives involved the following steps:

1. Compiling a preliminary set of water resource issues based on regional plans, studies, and technical reports,
2. Refining and clarifying the region's water resource issues through a series of facilitated public workshops and meetings,
3. Translating the various water resource issues identified by stakeholders into a set of goals and objectives that achieve consensus, and
4. Revising the regional goals and objectives based on stakeholder input and feedback.

The CVRWMG undertook an extensive review of regional plans, studies, and technical reports to identify the preliminary set of water resource issues. Information was obtained from a broad range of sources, including CVWD, Coachella Water Authority (CWA), DWA, Mission Springs Water District (MSWD), IWA, Coachella Valley Association of Governments (CVAG), DWR, Rural Community Assistance Corporation (RCAC), Poder Popular, Riverside County Flood Control and Water Conservation District (RCFCWCD), County of Riverside, Colorado River Regional Water Quality Control Board (RWQCB), and Desert Recreation District. Plans and reports included water management plans, water quality reports, engineer's reports, habitat conservation plans, general plans, groundwater replenishment reports, master

plans, feasibility studies, systems assessments, storm water management plans, and trails studies. *Chapter 12 References* provides a comprehensive list of the resources used to develop this IRWM/SWR Plan.

Following completion of the preliminary issues identification, a series of facilitated public workshops and meetings were held to gather further information on key water resource issues from stakeholders. A wide range of stakeholders were gathered in several different meetings to discuss and clarify the issues important to them. Following this thorough vetting of the Region's water resource issues, the CVRWMG developed a draft list of goals and objectives for stakeholder consideration. These draft goals and objectives were intended to capture and address the many issues raised by stakeholders throughout the issue identification phase. The draft goals and objectives were discussed and revised in the same multiple forums that had initially identified the key water resources issues:

- Planning Partners, including city, county, and regulatory representatives
- Targeted outreach to disadvantaged community representatives
- Targeted outreach to tribal representatives
- Public workshop attended by broad range of stakeholders

The objectives were revised based on all comments received, and a final list of goals and objectives were included in the project database, on the www.cvrwmg.org website, and in the 2010 IRWM Plan.

During the Coachella Valley IRWM Plan Update process in 2013, the objectives and goals were re-visited by the CVRWMG and Planning Partners to determine their relevance given changes that have taken place since 2010. In December 2012, the CVRWMG and Planning Partners discussed the 2010 IRWM Plan objectives and determined that they are still relevant and applicable given local conditions, and therefore appropriate for inclusion in the Coachella Valley IRWM/SWR Plan Update. Information gathered during the 2014 IRWM Plan Update process has been used to update the IRWM/SWR targets and metrics to reflect additional input and priorities received from stakeholders in 2013. A final list of goals and objectives will be included in the project database, on the www.cvrwmg.org website, and in the 2014 IRWM Plan Update.

As part of the 2018 IRWM/SWR Plan Update and development of the SWRP, the benefits of stormwater management were discussed in two Planning Partners meetings and a Desert Task Force meeting. Projects under the SWRP framework will help achieve some of the Region objectives since their benefits are directly related to some of them. The benefits that should be prioritized in the Coachella Valley when implementing stormwater projects were described, as presented in the SWRP Guidelines. A prioritization exercise was completed at the September 28, 2017 Planning Partners meeting to allow for stakeholder input on stormwater benefit prioritization for the Region (results in *Section 6.3 Stormwater Resource Plan Benefits Prioritization*).

6.1.3 Goals, Objectives, and the Planning Hierarchy

*This section complies with the **Quantitative Methods** requirements for the SWRP by establishing metrics for an integrated metrics-based analysis to demonstrate that the IRWM/SWR Plan's proposed water quality, stormwater capture and use, water supply, and flood management projects will satisfy IRWM/SWR Plan objectives and multiple benefits, including environmental and community benefits.*

This Coachella Valley IRWM/SWR Plan is intended to optimize water supply reliability, protect water quality, provide stewardship of water-related natural resources, coordinate water resource management, and ensure the cultural and social sustainability of water in the Coachella Valley. To meet these broad goals, thirteen objectives were developed through a collaborative stakeholder process. With input from the Planning Partners, the CVRWMG has also identified measurable targets for each objective in **Table 6-2**. The measurements described in **Table 6-2** are based on existing sources of data, such as the Region's existing water management plans (WMPs), urban water management plans (UWMPs), Engineer's Reports, and IRWM/SWR Project data that is reported to DWR. These data provide baselines where applicable and are anticipated or known to provide data in the future to measure progress towards implementation of the IRWM/SWR Plan. Data gaps have been identified (see *Chapter 11 Implementation, Section 11.3.1*) that could provide more precise measurements in the future to assess progress towards meeting targets if such data gaps are filled through future IRWM and stormwater projects (i.e. projects that include various studies, data collection, or pilot projects), or other efforts in the Region. The targets and measurements listed in this table will be revisited through IRWM/SWR planning updates and revisions. At that time, the CVRWMG will establish a uniform set of metrics for measuring IRWM/SWR Plan effectiveness.

The measurable targets for each IRWM/SWR Plan objective provide a way to assess each proposed project's contribution to the regional goals and objectives established by the Coachella Valley's stakeholders. The targets are presented for purposes of measuring the Region's collective attainment of the IRWM/SWR Plan objectives.

Additionally, as mentioned before, the need to address and adapt to impacts from climate change is an overarching goal of the plan and the accomplishing the individual objectives described in this chapter will help achieve that goal. Specific climate change impacts to the region are described in *Chapter 3*.

Through a public stakeholder process, the CVRWMG and Planning Partners developed these targets to measure the Region's progress during IRWM/SWR Plan implementation (see *Chapter 11 Framework for Implementation*). The CVRWMG will evaluate the status of each grant-funded IRWM and stormwater project. A summary of implementation progress is provided during Planning Partners meetings for stakeholders. By reporting each project's progress, regional stakeholders will be provided with an understanding of how the Coachella Valley's water management issues and needs are being addressed each year. For more information on monitoring efforts associated with the IRWM and stormwater projects, see *Chapter 11 Framework for Implementation, Section 11.4 Plan Performance and Monitoring.*

Page intentionally left blank.

Table 6-2: Coachella Valley IRWM/SWR Plan Goals, Objectives, and Targets

<table>
<tr><th>Objectives
Specific, observable outcomes</th><th>Targets
Measurable and tangible actions to achieve the objectives</th><th>Measurements
Measurements that can be used to evaluate progress towards meeting targets
(may be qualitative or quantitative)</th><th>Location of Measurement Information in 2018 IRWM/SWR Plan</th></tr>
<tr><td colspan="4">Goal 1. Optimize water supply reliability.</td></tr>
<tr><td>A. Provide reliable water supply for residential and commercial, agricultural community, and tourism needs.</td><td>Provide average year, single-year dry, and multi-year dry supplies to meet projected demand</td><td>Agency UWMPs provide average demand for a variety of water scenarios, including normal year, single dry year, and different years within a multiple dry year scenario. Projections are most accurate for normal years, included in the table below. Other water scenarios will be evaluated based on the 2015 or later UWMPs, as available at the time of IRWM/SWR Plan evaluation.
Projected Normal Year Demand
<table>
<tr><th>Agency</th><th>2015 (AFY)</th><th>2020 (AFY)</th><th>2025 (AFY)</th><th>2030 (AFY)</th><th>2035 (AFY)</th></tr>
<tr><td>CWA</td><td>6,531</td><td>12,497</td><td>15,967</td><td>20,405</td><td>26,073</td></tr>
<tr><td>CVWD</td><td>101,723</td><td>128,900</td><td>163,800</td><td>188,500</td><td>212,800</td></tr>
<tr><td>DWA</td><td>35,236</td><td>43,470</td><td>45,366</td><td>47,268</td><td>49,270</td></tr>
<tr><td>IWA</td><td>18,208</td><td>25,810</td><td>27,730</td><td>29,660</td><td>31,580</td></tr>
<tr><td>MSWD</td><td>7,252</td><td>9,550</td><td>11,669</td><td>14,108</td><td>16,547</td></tr>
</table>
Source: (CWA 2016); (CVWD 2016a); (DWA 2016); (IWA 2016); (MSWD 2016)
This target will be met if agency supplies meet the projected demands presented in the agencies' Urban Water Management Plans and summarized here. Supplies will be measured using reported values in agency planning documents.</td><td>Agency supplies are reported in Chapter 2 Region Description, Section 2.4.1 Water Supply.</td></tr>
<tr><td>B. Manage groundwater levels to reduce overdraft, manage perched water, and minimize subsidence.</td><td>Stabilize groundwater levels at or near current groundwater levels</td><td>Groundwater levels for the West Whitewater River Subbasin, the East Whitewater River Subbasin, and the Mission Creek Subbasin Areas of Benefit are reported in Figures V-1, V-2, VI-1, VI-2, VII-1, and VII-2 of the 2016-2017 Engineer's Report on Water Supply and Replenishment Assessment. These figures include groundwater levels at multiple locations in each subbasin, as well as document recent and historic changes in levels (from 2014-2015 and from 2005-2015). This target will be met if groundwater elevations at these sites do not show a significant decline in future Engineer's Reports, or if annual inflow meets or exceeds annual outflow for each subbasin (refer to Tables V-4, VI-4, and VII-3 in 2016-2017 Engineer's Report; CVWD 2017).</td><td>Groundwater overdraft (and information about inflows and outflows) are reported in Chapter 3 Issues and Needs, Section 3.1.2 Water Supply - Groundwater</td></tr>
</table>

<table>
<tr><th>Objectives
Specific, observable outcomes</th><th>Targets
Measurable and tangible actions to achieve the objectives</th><th>Measurements
Measurements that can be used to evaluate progress towards meeting targets
(may be qualitative or quantitative)</th><th>Location of Measurement Information in 2018 IRWM/SWR Plan</th></tr>
<tr><td>Objective B, cont.</td><td>Limit further subsidence due to groundwater overdraft to an acceptable level in Palm Desert, Indian Wells, and La Quinta</td><td>Eastern Coachella Valley groundwater levels should not drop below 2005 levels. Groundwater should be maintained at or higher than the level of compressible clays, these levels have yet to be determined, but will serve as the target level if they are determined in the future. Until then, the target will be measured against 2005 groundwater levels at the wells closest to areas of inferred subsidence at Palm Desert, Indian Wells, and La Quinta, as reported in the 2013 Engineer's Report for the West Whitewater River Subbasin, East Whitewater River Subbasins, and Mission Creek Subbasin Areas of Benefit, with inferred subsidence areas located per Figure 3-3. The table below includes well name and approximate 2005 groundwater levels.
<table>
<tr><th>Location</th><th>Well Name</th><th>2005 Groundwater Level (Depth to Water)</th></tr>
<tr><td>Palm Desert</td><td>State Well No. 05S06E29C01S</td><td>350 ft.</td></tr>
<tr><td>Indian Wells</td><td>State Well No. 05S06E24G01S</td><td>175 ft.</td></tr>
<tr><td>La Quinta</td><td>State Well No. 06S07E23F01S</td><td>90 ft.</td></tr>
</table>
Source: (CVWD 2013a); (CVWD 2013b)</td><td>Areas of inferred subsidence are shown in Figure 3-3 and discussed in Chapter 3 Issues and Needs, Section 3.1.2 Water Supply – Groundwater.</td></tr>
<tr><td rowspan="2">C. Secure reliable imported water supply, including restoring/improving reliability of State Water Project supply and securing other imported water supplies.</td><td>Secure 50,000 AFY new imported water supply</td><td>Current imported water supply is 572,100 AFY. To meet the target of 50,000 AFY of new imported water supply, total imported water supply for Region should equal 622,100 AFY. Progress towards meeting this target is measured by any AFY imported water over the current imported water of 572,100 AFY (CVWD 2016a; DWA 2016).</td><td>Total potable and non-potable water supplies presented in Table 2-10 of Chapter 2 Region Description, Section 2.4.1 Water Supply.</td></tr>
<tr><td>Contribute to restoring/improving reliability of State Water Project supply</td><td>Currently, 194,100 AFY of SWP allotment water delivered via exchange with the Metropolitan Water District of Southern California is the maximum amount of SWP water available to the Region based on the Region's SWP allotments. The net average SWP allotment supply is 95,109 AFY. These supplies are provided via allocation to CVWD and DWA, purchased from agencies outside the Region, or used in an exchange agreement with outside agencies. Target is met if SWP allotment water deliveries to the Region do not fall below 95,109 AFY (CVWD 2016a).</td><td>SWP allotments and reliability is discussed in Chapter 3 Issues and Needs, Section 3.1.2.</td></tr>
</table>

<table>
<tr><th>Objectives
Specific, observable outcomes</th><th>Targets
Measurable and tangible actions to achieve the objectives</th><th>Measurements
Measurements that can be used to evaluate progress towards meeting targets
(may be qualitative or quantitative)</th><th>Location of Measurement Information in 2018 IRWM/SWR Plan</th></tr>
<tr><td rowspan="3">D. Maximize local supply opportunities, including water conservation, water recycling and source substitution, and capture and infiltration of runoff.</td><td>Achieve compliance with SBx77 for conservation savings</td><td>Baseline per capita water use (in gallons per capita per day or GPCD) are shown below, along with each agency's targets to reduce water demand by 2020 as required by SBx7-7. Compliance with SBx7-7 will be measured by whether agencies meet their 2015 and 2020 targets, as reported in agencies' UWMPs.[1] For 2015, all suppliers achieved their targeted reduction.
<table>
<tr><th>Agency</th><th>Baseline (GPCD)</th><th>2015 Target (GPCD)</th><th>2015 Actual Water Use (GPCD)</th><th>2020 Target (GPCD)</th></tr>
<tr><td>CWA</td><td>208</td><td>204</td><td>142</td><td>200</td></tr>
<tr><td>CVWD</td><td>606</td><td>540</td><td>383</td><td>473</td></tr>
<tr><td>DWA</td><td>430</td><td>387</td><td>244</td><td>344</td></tr>
<tr><td>IWA</td><td>327</td><td>295</td><td>214</td><td>262</td></tr>
<tr><td>MSWD</td><td>290</td><td>262</td><td>172</td><td>235</td></tr>
</table>
Source: (CWA 2016); (CVWD 2016a); (DWA 2016); (IWA 2016); (MSWD 2016)</td><td>Total water demands are reported in Chapter 2 Region Description, Section 2.4.2 Water Demand.</td></tr>
<tr><td>Maximize recycled water use to 90% of available supplies</td><td>Projected recycled water supplies for 2020, as presented in agency 2015 UWMPs, equal 14,894 AFY. 90% of this supply equals 20,277 AFY. This target will be met if recycled water demands reach at least 20,277 AFY by 2020, as reported in agencies' UWMPs.
<table>
<tr><th>Agency</th><th>Projected 2020 Recycled Water Supplies (AFY)</th><th>2020 Target Recycled Water Use -90% of 2020 Projected Supply (AFY)</th></tr>
<tr><td>CWA</td><td>0</td><td>0</td></tr>
<tr><td>CVWD</td><td>14,300</td><td>12,870</td></tr>
<tr><td>DWA</td><td>6,100</td><td>5,490</td></tr>
<tr><td>IWA</td><td>1,010</td><td>909</td></tr>
<tr><td>MSWD</td><td>1,120</td><td>1,008</td></tr>
<tr><td>Total</td><td>22,530</td><td>20,277</td></tr>
</table>
Source: (CWA 2016); (CVWD 2016a); (DWA 2016); (IWA 2016); (MSWD 2016)</td><td>Table 2-10 in Chapter 2 Region Description, Section 2.4.1 Water Supply presents recycled water supplies and projected supplies from each agency.</td></tr>
<tr><td>Expand storm water capture and infiltration over current levels</td><td>Progress towards meeting this target will be measured by the number of projects that expand or implement storm water capture and infiltration. The number of projects will be determined by either 1) a review of implemented projects in online project database with stormwater capture and infiltration benefits, or 2) through the number of projects that have received funding through an IRWM grant application (e.g., projects funded through Proposition 84 and Proposition 1 Implementation grants) and provide stormwater capture and infiltration benefits. Additionally, collective analysis of how the stormwater projects in the watershed will capture and use stormwater and dry weather runoff will be measured via the online project database, where project sponsors can include quantification of capture and infiltration resulting from project implementation.</td><td>Appendix VI-H contains the list of projects included in the online project database. Refer to online project database for current project list and detailed project information.</td></tr>
</table>

[1] Please note that the GPCD numbers for CVWD and DWA appear high relative to the other reported GPCDs due to the conservative calculation used to derive these numbers. As discussed in *Chapter 2 Region Description,* water demands from seasonal residents are included within GPCD calculations that are used to assess water conservation targets. The GPCD calculations rely upon historic water demand data, which includes water demands from all users in the Coachella Valley (permanent and non-permanent residents); however, population numbers for the GPCD calculations only include permanent residents. The use of all water demands but only a portion of water users within the Region has resulted in conservative (higher) GPCD estimations.

<table>
<tr><th>Objectives
Specific, observable outcomes</th><th>Targets
Measurable and tangible actions to achieve the objectives</th><th>Measurements
Measurements that can be used to evaluate progress towards meeting targets
(may be qualitative or quantitative)</th><th>Location of Measurement Information in 2018 IRWM/SWR Plan</th></tr>
<tr><td>Objective D, cont.</td><td>Establish desalination capacity of 11,000 AFY</td><td>Current desalination capacity is 0 AFY. Target is met if desalination capacity totals 11,000 AFY, an increase of 11,000 AFY.
<table><tr><th>Agency</th><th>2018 Agricultural Desalination Capacity (AFY)</th><th>2025 Projected Agricultural Desalination Capacity (AFY)</th><th>2045 Projected Agricultural Desalination Capacity (AFY)</th></tr><tr><td>CWA</td><td>0</td><td>0</td><td>0</td></tr><tr><td>CVWD</td><td>0</td><td>11,000</td><td>85,000</td></tr><tr><td>DWA</td><td>0</td><td>0</td><td>0</td></tr><tr><td>IWA</td><td>0</td><td>0</td><td>0</td></tr><tr><td>MSWD</td><td>0</td><td>0</td><td>0</td></tr></table>*Source: (CWA 2016); (CVWD 2016a); (DWA 2016); (IWA 2016); (MSWD 2016)*
Progress towards meeting target is measured by the total desalination capacity in the Region, as reported in agencies' UWMPs.</td><td>Desalination of semi-perched brackish groundwater is discussed in *Chapter 2 Region Description, Section 2.2.6 Agricultural Water – Desalinated Water*.</td></tr>
<tr><td colspan="4">Goal 2. Protect or improve water quality.</td></tr>
<tr><td rowspan="2">E. Protect groundwater quality and improve, where feasible.</td><td>Maintain western Coachella Valley groundwater quality at or above current conditions when economically feasible</td><td>Progress towards this target will be measured by the number of projects that protect or improve groundwater quality in the western Coachella Valley, through review of implemented projects in the online project database with these benefits or through the number of projects with such benefits that have received funding through an IRWM grant. The target will be met if the western Coachella Valley groundwater is in compliance with established MCLs.</td><td>Appendix VI-H contains the list of projects included in the online project database. Refer to online project database for current project list and detailed project information.</td></tr>
<tr><td>Reduce the arsenic concentration in eastern Coachella Valley drinking water</td><td>Arsenic concentrations in eastern Coachella Valley have tested as high as 162 µg/L. Previous tests have found arsenic ranging from 12 to 91 µg/L in some mobile home parks in parts of Mecca, Oasis, and Thermal. The U.S. EPA MCL for arsenic is 10 µg/L (CVWD 2011).

Progress towards meeting this target is measured if arsenic concentrations test within U.S. EPA standards, or by the number of projects either in the online project database or funded through an IRWM grant that have been implemented that provide arsenic reduction benefits. For IRWM-funded projects, this can also be measured by the arsenic treatment systems installed in the eastern Coachella Valley, as reported by project sponsors.</td><td>Discussion of arsenic as a concern is found in *Chapter 2 Region Description, Section 2.5.1 Groundwater Quality* and *Section 2.5.7 Drinking Water Quality*. Appendix VI-H contains the list of projects included in the online project database. Refer to online project database for current project list and detailed project information.</td></tr>
<tr><td></td><td>Convert existing septic systems that are failing or identified as degrading water quality to municipal sewer or replace/retrofit failing systems</td><td>This target will be measured by the number of septic system retrofits or replacements installed by projects funded through an IRWM grant or by the number of septic-to-sewer and septic replacement/rehabilitation projects in the online project database that have been implemented.</td><td>Appendix VI-H contains the list of projects included in the online project database. Refer to online project database for current project list and detailed project information.</td></tr>
</table>

Objectives Specific, observable outcomes	Targets Measurable and tangible actions to achieve the objectives	Measurements Measurements that can be used to evaluate progress towards meeting targets (may be qualitative or quantitative)	Location of Measurement Information in 2018 IRWM/SWR Plan
Objective E, cont.	Reduce the frequency and volume of sanitary sewer overflows	According to the SWRCB's Sanitary Sewer Overflow Incident Map, between 2014 and 2018, there have been approximately 25 sanitary sewer overflows, totaling 2,709,820 gallons (average 24,360 gal per overflow). This is an average of 6 overflows per year with an average annual overflow of 677,455 gallons. This target will be met if the Region experiences an average of fewer than 6 overflows per year, overflows total less than an average of 677,455 gallons per year, or if the average volume of an overflow is less than 112,909 gallons, as reported in the State Water Resources Control Board's Sanitary Sewer Overflow Report (SWRCB 2018).	Sanitation systems are discussed in *Chapter 2 Region Description, Section 2.2.3 Wastewater*.
	Develop and implement a regional SNMP Strategy in accordance with the State's Recycled Water Policy	This target has been met with the development of the Salt and Nutrient Management Plan (SNMP) by CVWD, IWA, and DWA, that is consistent with the State's Recycled Water Policy is developed and adopted. The SNMP was completed in June 2014 and updated in January 2015.	Discussion of the SNMP Planning efforts is provided in *Chapter 10 Agency Coordination*
	Ensure that municipal water supplies meet mandated Maximum Contaminant Levels (MCLs) for potable water	This target will be met if municipal water supplies provided to customers by the Region's water purveyors (CVRWMG agencies) meets all applicable MCLs. Information about attaining the MCLs is compiled in each agency's Consumer Confidence Reports on an annual basis.	Discussion of the Region's groundwater quality conditions and the Consumer Confidence Reports is included in *Chapter 2 Region Description*, *Section 2.5.1 Groundwater Quality*
F. Preserve and improve surface water quality by maintaining integrity of agricultural drainage systems, protecting the quality of natural runoff used for potable supply, and reducing pollution in storm water runoff.	Preserve natural runoff in Chino Creek, Snow Creek, and Falls Creek for drinking water needs	DWA withdraws a total of 1,800 AFY of surface water from Snow Creek, Falls Creek, Chino Creek North, and Chino Creek West. This target was met since DWA remains able to use all 1,800 AFY of surface water without being subject to restrictions related to low flows in the creeks and river (DWA 2016).	DWA's surface water supplies are described in *Chapter 2 Region Description, Section 2.2.2 Water Systems and Distribution – Surface Water*

<table>
<tr><th>Objectives
Specific, observable outcomes</th><th>Targets
Measurable and tangible actions to achieve the objectives</th><th>Measurements
Measurements that can be used to evaluate progress towards meeting targets
(may be qualitative or quantitative)</th><th>Location of Measurement Information in 2018 IRWM/SWR Plan</th></tr>
<tr><td>Objective F, cont.</td><td>Implement TMDL requirements according to adopted schedules</td><td>Currently there are 6 pollutants within the Region, all of which are for the Coachella Valley Storm Water Channel:
<table>
<tr><th>Pollutant</th><th>Estimated TMDL completion date</th><th>Comments</th></tr>
<tr><td>Pathogens (E. coli)</td><td>2022[1]</td><td>Found along a 17 mile stretch from Dillon Rd. to Salton Sea</td></tr>
<tr><td>Toxaphene</td><td>2019</td><td>Used as insecticide until 1982. Found along 2-mi stretch from Lincoln St. to Salton Sea</td></tr>
<tr><td>DDT</td><td>2021</td><td>Used as pesticide until 1970s. Found in fish tissue samples collected between 1986 and 2000</td></tr>
<tr><td>Dieldrin</td><td>2021</td><td>Used as pesticide until 1974. Found in fish tissue samples collected between 1986 and 2000</td></tr>
<tr><td>PCBs</td><td>2021</td><td>Used as coolants and lubricants in electrical equipment until 1977. Found in fish tissue samples collected between 1986 and 2000.</td></tr>
<tr><td>Nitrogen, ammonia (Total Ammonia)</td><td>2025</td><td>Added to the 3030(d) list in 2012. Water quality samples exceeded evaluation guidelines for total ammonia as nitrogen between 2005 and 2008</td></tr>
</table>
[1] TMDL approved by USEPA April 27, 2012
Source: (SWRCB 2012)

Progress towards meeting this target will be measured by the number of TMDL Implementation Plans that have been developed and TMDLs that have been implemented and are in compliance by their target date.
Additionally, stormwater projects will be measured through analysis of proposed watershed-based outcomes using modeling, calculations, pollutant mass balances, water volume balances, or other methods of analysis, as indicated in the online project database.</td><td>Impaired waters are discussed in Chapter 2 Region Description, Section 2.5.3 Surface Water Quality and Section 2.5.5 Stormwater Quality and Water Quality Compliance</td></tr>
<tr><td colspan="4">Goal 3. Provide stewardship of our water-related natural resources.</td></tr>
<tr><td rowspan="2">G. Preserve local environment and restore, where feasible.</td><td>Conserve or protect native water-related habitats</td><td>Progress towards achieving this target will be measured by the number of projects and programs in the online project database, or the number of projects funded through IRWM/SWR grants, that have been implemented and benefit native water-related habitats.</td><td>Appendix VI-H contains the list of projects included in the online project database. Refer to online project database for current project list and detailed project information.</td></tr>
<tr><td>Provide restoration consistent with the CVMSHCP</td><td>Restoration and conservation efforts required by the CVMSHCP include:
• A permanent water source for permanent habitat for California black rail and Yuma clapper rail in the CVSC and Delta Conservation Area
• A permanent water source, as needed, for riparian habitat for covered riparian bird species (refer to CVMSHCP Section 4.3.20)
• A permanent water source for desert pupfish habitat
• Restoring and enhancing mesquite and Coachella Valley round-tailed ground squirrel habitat in East Indio Hills Conservation area if feasible

This target will be met if the conservation efforts described above are implemented, if the conservation goals are met, or if authorized disturbances within conservation areas are not exceeded (refer to Table 3 in the 2017 CVMSHCP Annual Report) (CVAG 2017).</td><td>The CVMSHCP is discussed in Chapter 2 Region Description, Section 2.2.8 Natural Communities and Habitats. Figure 2-7 shows natural communities and Figure 2-8 shows conservation areas in the Region.</td></tr>
</table>

Objectives Specific, observable outcomes	Targets Measurable and tangible actions to achieve the objectives	Measurements Measurements that can be used to evaluate progress towards meeting targets (may be qualitative or quantitative)	Location of Measurement Information in 2018 IRWM/SWR Plan
H. Manage flood risks, including current acute needs and needs for future development.	Provide flood protection to existing properties where benefits exceed costs	This target will be measured by the number of implemented projects that provide flood protection benefits to existing properties and are listed in the online project database or funded through an IRWM grant. It is presumed that implemented projects will have benefits that exceed costs. Projects can include structural and non-structural strategies to reduce flood risks.	**Appendix VI-H** contains the list of projects included in the online project database. Refer to online project database for current project list and detailed project information.
	Develop new flood control facilities in conjunction with new development	This target will be measured by the number of new developments or IRWM or SWRP projects that provide flood protection in areas at risk for flooding but lacking flood control facilities. These areas, identified in the Integrated Flood Management (IFM) Study (**Appendix VI-I**), include: • Areas adjacent to Mission Creek in the Desert Hot Springs area • Sky Valley and Indio Hills • Thousand Palms • Portions of Indio north of Interstate 10 • The Oasis community extending from Avenue 66 to Avenue 86 • Areas adjacent to the CVSC south of Avenue 52 • Highway 111 between Palm Springs and Cathedral City • Roadways that cross the Whitewater River	Flood risks are described in *Chapter 3 Issues and Needs, Section 3.1.6 Flood Management*, and based on the results of the IFM Study conducted for the 2014 IRWM Plan update. This study is provided in full as **Appendix VI-I**.
Goal 4. Coordinate and integrate water resource management.			
I. Optimize conjunctive use of available water resources.	Implement projects coordinating management of surface and groundwater resources consistent with the CVWMP	Progress towards achieving this target will be measured by the number of projects and programs in the online project database or funded through an IRWM or SWGP grant that have been implemented in the Region and use surface and groundwater resources management strategies included in *Section 6* of the 2010 Coachella Valley Water Management Plan Update (CVWD 2012).	**Appendix VI-H** contains the list of projects included in the online project database. Refer to online project database for current project list and detailed project information.
J. Maximize stakeholder involvement and stewardship in water resource management.	Develop CVRWMG website to provide centralized access to water resources data	This target will be measured by the number of water resources documents uploaded to the CVRWMG website's data library following adoption of the 2018 IRWM/SWR Plan. This target may also be met through provision of links to appropriate water resources websites (including but not limited to agency websites, or pages with water quality data) that combined cover the majority of the Region.	The online library is discussed in *Chapter 11 Framework for Implementation, Section 11.3 Data Management* and is available on the IRWM Program website (http://cvrwmg.org/).
	Conduct outreach and education on water resources topics/projects to the Coachella Valley population through conservation programs	Progress towards this target is measured in the number of stakeholders reached through outreach meetings, programs, or projects, as recorded in meeting attendance, number of handouts distributed or other metric appropriate to the type of outreach.	**Appendix VI-D**, Meeting Notes, provides attendance records for various meetings and workshops hosted by the CVRWMG. *Chapter 7 Stakeholder Involvement* also discusses outreach and education efforts.
	Conduct outreach and education specifically targeted toward the value and high quality of municipal drinking water supplies	Progress towards this target is measured in the number of stakeholders reached through conservation program outreach meetings, programs, or projects (as recorded in meeting attendance, number of handouts distributed or other appropriate metric depending on the type of outreach) that contain targeted information on the value and high quality of municipal drinking water supplies. Progress towards this target is also measured by the number of owners of mobile home parks or other residential locations that are targeted for outreach that encourages them to participate in the IRWM process or to implement projects that can help to resolve on-site issues.	*Chapter 7 Stakeholder Involvement* also discusses outreach and education efforts. Water quality information is presented in *Chapter 2 Region Description, Section 2.5.7 Drinking Water Quality*.

Objectives Specific, observable outcomes	Targets Measurable and tangible actions to achieve the objectives	Measurements Measurements that can be used to evaluate progress towards meeting targets (may be qualitative or quantitative)	Location of Measurement Information in 2018 IRWM/SWR Plan
Objective J, cont.	Provide "hands-on" water resources stewardship opportunities to the Coachella Valley population through conservation programs	This target will be measured by the number of conservation events held, pre- and post-retrofit water use records, water demand statistics, and public surveys and questionnaires, as tracked through the Regional Water Conservation Program funded through Proposition 84, Round 1 Implementation Grant. Additional progress may be measured through similar metrics, as tracked by individual programs or projects (CVRWMG 2012).	The Regional Water Conservation Program is described in *Chapter 11 Framework for Implementation, Section 11.1.1 Overview of Benefits*.
Goal 5. Ensure cultural, social, and economic sustainability of water in the Valley.			
K. Address water-related needs of local Native American culture.	Address Native American needs through ongoing communication with local tribes	Five of seven tribes in the Region have expressed interest in participating in the IRWM/SWR Plan. Progress towards achieving this target will be measured by the number of IRWM/SWR Plan and CVRWMG communications (emails, letters, meetings, workshops, etc.) with the five participating tribes.	**Appendix VI-D**, Meeting Notes, provides attendance records for various meetings and workshops, including meetings with Tribes. *Chapter 7 Stakeholder Involvement, Section 7.6 Tribal Outreach and Coordination* describes tribal outreach conducted by the IRWM/SWR Plan.
	Support protection of culturally-significant resources on tribal lands	Culturally significant resources on tribal lands include wetlands and native habitat. This target will be met if the IRWM/SWR Plan supports projects and programs that provide benefits to native habitats and wetlands. Progress towards this target will be measured by the number of projects and programs in the online project database, or included in an IRWM or SWGP grant application, and provide these types of benefits.	**Appendix VI-H** contains the list of projects included in the online project database. Refer to online project database for current project list and detailed project information.
L. Address water and sanitation needs of disadvantaged communities, including those in remote areas.	Address DAC needs through ongoing communication with an increasing number of organizations and participants, recognizing the complexity of DAC water infrastructure concerns	This target will be met if the Region continues communication with DACs as appropriate. The target will be measured by the number of organizations and participants who attend workshops and meetings targeting DACs and by the number of DAC organizations and participants who join the stakeholder mailing list. This target will also be measured by outreach activities that help to reduce the barriers to DAC participation as described in *Chapter 4 Disadvantaged Communities*.	**Appendix VI-D**, Meeting Notes, provides attendance records for various meetings and workshops, including meetings with Tribes. **Table 7-5** lists the DAC Issues Group Participants, **Table 7-10** provides the entire Coachella Valley IRWM/SWR Stakeholder list.
	Address needs of DACs located on Tribal lands	This target will be met if the Region continues communication and outreach with DACs located on Tribal lands, as appropriate. The target will be measured by the number of organizations and participants who attend workshops and meetings targeting DACs on Tribal lands and by the number of DAC organizations and participants who join the stakeholder mailing list.	**Appendix VI-D**, Meeting Notes, provides attendance records for various meetings and workshops, including meetings with Tribes. **Table 7-5** lists the DAC Issues Group Participants, **Table 7-10** provides the entire Coachella Valley IRWM/SWR Stakeholder list.
	Protect groundwater quality by implementing a program to properly seal groundwater wells	This target will be measured by the number of projects or programs in the online project database, or funded through an IRWM grant, that implement proper groundwater well sealing.	**Appendix VI-H** contains the list of projects included in the online project database. Refer to online project database for current project list and detailed project information.

Objectives Specific, observable outcomes	Targets Measurable and tangible actions to achieve the objectives	Measurements Measurements that can be used to evaluate progress towards meeting targets (may be qualitative or quantitative)	Location of Measurement Information in 2018 IRWM/SWR Plan
Objective L, cont.	Improve drinking water quality for DACs by providing affordable water treatment options to meet drinking water standards	This target will be measured by the number of projects in the online project database, or funded through an IRWM grant, that improve drinking water quality for DACs (such as point-of-use treatment systems). It is presumed that any such project will only be implemented if it provides affordable drinking water for the DACs being targeted. Affordability considerations will include impacts to residents for cost of service, including connection fees, operation and maintenance fees, etc.	**Appendix VI-H** contains the list of projects included in the online project database. Refer to online project database for current project list and detailed project information.
	Convert failing/ degrading septic systems that impact water quality in DACs to sewer or replace/ retrofit failing systems	This target will be measured by the number of projects in the online project database or funded through an IRWM grant that have been implemented and provide connections in DACs or replace failing septic systems in DACs.	**Appendix VI-H** contains the list of projects included in the online project database. Refer to online project database for current project list and detailed project information.
M. Maintain affordability of water.	Maintain affordable water rates through commitment to water use efficiency, matching water quality to use, maximizing use of local supplies, and implementing cost-effective solutions to the maximum extent feasible	This target will be measured by the number of projects (and reported customers benefitted) in the online project database, or funded by an IRWM or SWGP grant, that have implemented measures aimed at maintaining affordable water rates through water use efficiency, matching water quality to use, maximizing local supplies, and implementing cost-effective solutions.	**Appendix VI-H** contains the list of projects included in the online project database. Refer to online project database for current project list and detailed project information.
	Maintain average cost to income ratio at current levels	Progress towards meeting this target will be measured by the number of projects (and reported customers benefitted) in the online project database, or funded by an IRWM or SWGP grant, that have been implemented and contribute towards maintaining the average cost to income ratio.[2]	**Appendix VI-H** contains the list of projects included in the online project database. Refer to online project database for current project list and detailed project information.

[2] Projects funded through IRWM grants will be analyzed for their cumulative costs and benefits in accordance with DWR requirements.

Page intentionally left blank.

6.2 Prioritizing Objectives

This section contains an explanation of how IRWM/SWR Plan objectives are grouped together as a priority for implementation.

Through facilitated meetings to discuss project prioritization in 2010, the CVRWMG, Planning Partners, and stakeholders determined that the following regional goals and objectives are priorities for implementation in the Coachella Valley:

- Optimize Water Supply Reliability (Corresponding to Goal 1, including Objectives A-D)
- Protect or Improve Water Quality (Corresponding to Goal 2, including Objective E-F)
- Manage Flood Risks (Objective H)
- Optimize Conjunctive Use of Surface and Groundwater Supplies (Objective I)
- Directly Benefit Disadvantaged Communities (Objectives L-M)

Because of the broad range of stakeholders involved in the planning process – from water suppliers and wastewater agencies, to land use planners and regional flood managers, to conservation organizations and DACs representatives – no specific numerical priority could be placed on these high-priority objectives. Different stakeholders in the IRWM/SWR planning process place priority on different issues and needs as discussed in the next section. However, through a consensus-based stakeholder process, the Region's participants have determined that the nine identified objectives listed above are key priorities for near-term IRWM/SWR Plan implementation. As such, those objectives are granted more weight in the project prioritization process discussed in *Chapter 9 Project Evaluation and Prioritization*.

Of primary importance to the Coachella Valley IRWM/SWR Plan is the concept of integration, which involves addressing water supply, water quality, flood control, and ecosystem challenges through multi-benefit project solutions. This is also a consideration in definition of RMSs and projects (see *Chapter 7 Stakeholder Involvement* and *Chapter 9 Project Evaluation and Prioritization*).

The nine objectives identified as priorities in the Region were reviewed during the Planning Partners meeting in June 2013, when meeting attendees considered the relevance of each objective to the Region. Further, stakeholders conducted a prioritization exercise during which they were each given stickers and asked to place their stickers on those objectives that they consider most important to the Region. This exercise was intended to give a general idea of objective prioritization for those stakeholders in attendance at the June 2013 Planning Partners meeting and was not intended to result in a definitive prioritization of the IRWM/SWR Plan objectives.

When comparing the existing objective prioritization to results of the 2013 Planning Partners prioritization exercise, it was found that the existing IRWM prioritization process described herein (which is the result of the 2010 planning effort) is essentially in alignment with the prioritization process conducted by the Planning Partners and is considered a means of prioritizing the IRWM/SWR Plan Objectives.

Objective J (maximize stakeholder involvement and stewardship in water resource management), however, was not prioritized in the original (2010) IRWM project selection process in that projects were not given additional points for meeting this objective. Due to stakeholder input on the importance of stakeholder involvement and outreach and the CVRWMG's recognition of the value of stakeholder input in the IRWM

process, the 2014 IRWM Plan was amended to provide additional points for those projects that meet Objective J.

Table 6-3 below provides an overview of the 2018 IRWM/SWR Plan Objectives and their relative prioritization for IRWM projects based on 2010 IRWM project selection and scoring criteria and additional stakeholder input gathered for the 2014 IRWM Plan.

Table 6-3: Weighted IRWM Objectives Based on Prioritization

Priorities	IRWM/SWR Objective	Relative Weighting for Project Prioritization (Chapter 9)
Optimize Water Supply Reliability	A. Provide reliable water supply for residential and commercial, agricultural community, and tourism needs.	20 points for optimizing water supply reliability (9%)
	B. Manage groundwater levels to reduce overdraft, manage perched water, and minimize subsidence.	
	C. Secure reliable imported water supply, including restoring/improving reliability of State Water Project supply and securing other imported water supplies.	
	D. Maximize local supply opportunities, including water conservation, water recycling and source substitution, and capture and infiltration of runoff.	
Protect or Improve Water Quality	E. Protect groundwater quality and improve, where feasible.	20 points for protecting or improving water quality (9%)
	F. Preserve and improve surface water quality by maintaining integrity of agricultural drainage systems, protecting the quality of natural runoff used for potable supply, and reducing pollution in storm water runoff.	
Manage Flood Risk	H. Manage flood risks, including current acute needs and needs for future development.	20 points for managing flood risks (9%)
Optimize Conjunctive Use of Surface and Groundwater Supplies	I. Optimize conjunctive use of available water resources.	20 points for optimizing conjunctive use of surface and groundwater supplies (9%)
Maximize Stakeholder Involvement and Stewardship in Water Resource Management	J. Maximize stakeholder involvement and stewardship in water resource management.	20 points for maximizing stakeholder involvement and stewardship in water resource management (9%)
Directly Benefit Disadvantaged Communities	L. Address water and sanitation needs of disadvantaged communities, including those in remote areas.	20 points for directly benefitting disadvantaged communities (9%)
	M. Maintain affordability of water.	Project selection process includes economic

Priorities	IRWM/SWR Objective	Relative Weighting for Project Prioritization (Chapter 9)
Directly Benefit Disadvantaged Communities (cont.)		feasibility and cost-effectiveness. Those projects that are considered cost-effective are qualitatively prioritized in the process

6.3 Stormwater Resource Plan Benefits Prioritization

*This section complies with the **Identification and Prioritization of Projects** requirements for the SWRP by prioritizing the benefits that guide the quantitative and metrics-driven prioritization of projects. This section also complies with the **Implementation Strategy and Schedule** requirements by identifying projects and appropriate decision support tools that ensure the effective implementation of the SWRP.*

Stormwater projects can provide multiple benefits related to improving water quality, reducing flood risk, increasing water supply, providing environmental benefits, and supporting community involvement.

The CVRWMG held a Planning Partners meeting on September 28, 2017 to solicit input from stakeholders on the 2018 IRWM/SWR Plan Update and which stormwater benefits were considered most important for the Region. For development of the SWRP, a stormwater benefits prioritization exercise was conducted to allow Coachella Valley stakeholders to provide input on stormwater priorities for the Region. The potential benefits provided by stormwater projects were presented to the group and the Planning Partners suggested adding three additional benefits to the list: protect high risk communities, reduce damages from flooding, and increase collaboration. The full list of stormwater benefits is summarized in **Table 6-4**. Each participant had five stickers (votes) they could assign to the benefits that are most important for the Region by placing one or more stickers next to the appropriate benefit.

The results of this prioritization exercise are shown in **Figure 6-1, Figure 6-2**, and **Table 6-4** below. **Table 6-4** shows the total number of votes for each SWRP Benefit, as selected by the Planning Partners. **Figure 6-1** and **Figure 6-2** show the distribution of votes for each category of benefits and each individual benefit, respectively. The figures show that Flood Management and Water Supply are the two most important stormwater benefit categories to the Planning Partners, with Decreased Flood Risk and Runoff Capture and Reuse being the top two subcategories within each category.

The relative importance of the benefits to be achieved with stormwater projects will be used in prioritization for stormwater projects under the SWRP (refer to *Chapter 9 Project Evaluation and Prioritization*).

Table 6-4: Stormwater Benefits Prioritization

SWRP Benefits Category	SWRP Benefits	Prioritization
Water Quality	Increased filtration	●●●●●
	Nonpoint source pollution control	●●●●●
	Reestablished natural water drainage	
	Compliance with permit	●●●
Water Supply	Water supply reliability	●●●●●
	Groundwater management	●●●●●
	Runoff capture and reuse	●●●●●●●●
	Drinking water supply	●●
	Reduction of imported water	●
	Water conservation	●
Flood Management	Decreased flood risk	●●●●●●●●●●●
	Reduced runoff	●●●●●●
	Reduced sanitary sewer overflows	●●●
	Protect high risk communities*	●●●
	Reduced damages from flooding*	●●●
Environmental	Environmental protection	●
	Wetland enhancement	
	Stream/riparian enhancement	
	Instream flow augmentation	
	Increased urban green space	●
	Reduced energy use	●●●●●●
	Reestablishment of natural hydrograph	●
	Water temperature improvements	
Community	Enhanced recreational areas	●
	Community outreach	●●●●●
	Employment opportunities	●
	Increased collaboration*	●

* Additional benefits for the Region suggested by the Planning Partners

Figure 6-1: Stormwater Benefits Prioritization – Percentage by Category

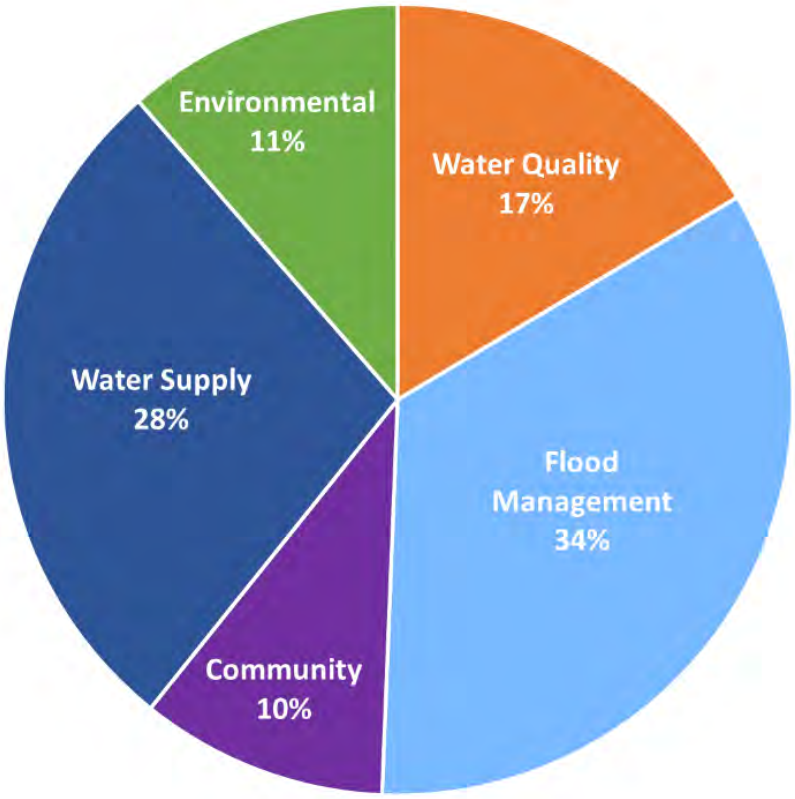


Figure 6-2: Stormwater Benefits Prioritization

7 Stakeholder Involvement

Integrated Regional Water Management (IRWM) Standards: *This chapter addresses the* ***Stakeholder Involvement Standard****, which ensures that the Coachella Valley Regional Water Management Group (CVRWMG) gives the opportunity to all stakeholders to actively participate in the IRWM decision making process on an on-going basis. This chapter also addresses the* ***Governance Standard****, which describes the structures and procedures that govern Plan decision making and result in Plan longevity.*

Stormwater Resource Plan (SWRP) Requirements: *This chapter addresses the Education, Outreach, and Participation requirements for the Plan, which ensures public education and participation opportunities during SWRP development and implementation.*

As discussed within *Chapter 1 Introduction*, the Coachella Valley IRWM Program and the preparation of the Coachella Valley IRWM/Stormwater Resource (SWR) Plan are led by the CVRWMG with primary support from an advisory board known as the Planning Partners. In addition to the Planning Partners, specific outreach efforts have been undertaken to disadvantaged communities (DACs), tribal stakeholders, and members of the public. Outreach efforts associated with DACs are discussed in detail in *Chapter 4 Disadvantaged Communities*. Information in Chapter 4 includes information about the outreach efforts that were undertaken as part of the IRWM Program and IRWM/SWR Plan development, as well as recommendations that could be implemented to improve DAC participation and involvement in the IRWM Program and IRWM/SWR Plan development. The addition of the SWRP utilizes the existing IRWM stakeholder outreach and involvement processes and meetings, as many of the stakeholders with stormwater interests already participate in the IRWM Program. The Planning Partners meetings have been used to involve stakeholders in the IRWM/SWR Plan development.

No structures are in place that would create a barrier to participation in as much as there are no internal limitations that preclude stakeholders from participating in the IRWM Program or SWR planning efforts and the decision-making process; therefore, nothing needs to be deconstructed and each procedure, process, or structure that is put in place can be evaluated for its effectiveness in terms of inclusiveness and transparency. The process for stakeholder participation is rooted in broad-based community input through key processes:

- Stakeholders interested in water resource issues are invited to participate, as evidenced by the broad reach of the stakeholder list (**Table 7-10**);
- Stakeholders are drawn from outside the water community to include environmental, recreational, development, and land use representatives; and
- Stakeholders have wide regional distribution in their geographic reach.

The intent of the CVRWMG is to establish and continue processes that achieve a collaborative, multi-stakeholder result so that regional solutions address concerns of DACs, tribes, the environmental community, and other key stakeholders. Some of the processes that the CVRWMG employs to promote collaboration and access include:

- Planning Partners are viewed as their name suggests, as partners in the IRWM Program and in IRWM/SWR Plan development. The CVRWMG vets major decisions through and consults the Planning Partners to ensure stakeholder input is received throughout development of planning documents and project selection processes;
- Membership for the Planning Partners is informal and open to any interested stakeholder. This openness helps to increase the diversity of Planning Partners as much as possible; and
- Planning Partners can participate in more focused, ad-hoc workgroups according to their interests.

7.1 Establishment of the IRWM Program and SWR Planning Process

This section describes the history of the IRWM Program's foundation, including the creation of the CVRWMG and selection of its members, as well as the SWR planning process.

Prior to the creation of the Coachella Valley IRWM Program, regional water management efforts in the Coachella Valley were conducted by Desert Water Agency (DWA) and Coachella Valley Water District (CVWD) without much participation or input from other Coachella Valley water purveyors. The initial interest in producing an IRWM Plan for the Coachella Valley came from Mission Springs Water District (MSWD) seeking to qualify for Proposition 50 grant money to fund its septic-to-sewer conversion project. In 2004 and 2005, MSWD, DWA, and CVWD began discussions on the need for an integrated approach to water resources planning and an IRWM Plan. However, litigation between the regional agencies, questions regarding the need for an IRWM Plan, and concerns of added government level involvement to the Coachella Valley IRWM Region's (Region) water management efforts delayed the IRWM process.

By 2006, the general managers of CVWD, DWA, and MSWD, along with representatives of the City of Indio/Indio Water Authority (IWA) and the City of Coachella/Coachella Water Authority (CWA), began bi-monthly meetings in which regional water issues were discussed. These meetings provided a forum for discussing the Coachella Valley's interest and willingness to participate in the IRWM Program. As a result, in early 2008, the group agreed to a study on IRWM governance, which was funded by CVWD. In February 2008, the five Coachella Valley water purveyors held their first IRWM meeting to develop a Memorandum of Understanding (MOU) (see **Appendix VI-C** of this IRWM/SWR Plan).

On September 9, 2008, the five Coachella Valley water purveyors formed the CVRWMG through the adoption of a MOU that established procedures for collaboration and development of an IRWM Plan. Each of the five water purveyors indicated their individual intent to adopt the IRWM Plan by signing the MOU. The MOU outlines the purpose and goals for the development of the Coachella Valley IRWM Plan, identifies common issues and interests, establishes communication and coordination between the partners, and provides other general provisions. The MOU, as well as the formalization of the Coachella Valley as an approved region through the 2009 Region Acceptance Process, qualify the CVRWMG as a Regional Water Management Group (RWMG) in accordance with CWC §10539.

In 2014, the Valley Sanitary District (VSD) was added as a member of the CVRWMG. As a wastewater agency, VSD provides wastewater collection and management services to customers primarily within the City of Indio. VSD is an important partner in wastewater management within the Eastern Coachella Valley and joined the CVRWMG as a key player in the joint VSD/IWA recycled water effort. Since 2014, the six CVRWMG member agencies have jointly managed the IRWM Program.

Following the enactment of SB 985 in 2014, development of a SWRP that addresses watershed-based stormwater management and water quality compliance became a requirement for receiving any State bond funds for any stormwater or dry weather runoff capture project. To meet these requirements, the CVRWMG decided to expand the IRWM Plan to address additional stormwater management issues and priorities and serve as a joint IRWM/SWR Plan.

Since formation of the CVRWMG, the CVRWMG agencies have met regularly to discuss the IRWM Program, IRWM/SWR Plan, grant opportunities, as well as general regional water management efforts and items that are of regional importance. The 2008 MOU has been supplemented five times to address changes and progress in the IRWM Program and reflects the relationships amongst CVRWMG member agencies. The CVRWMG will continue to meet regularly and conduct stakeholder outreach for the IRWM Program and will include outreach for the SWR planning process with the existing IRWM outreach and coordination efforts (and program database) as necessary.

7.2 Structure and Organization

This section contains a description of the chosen governance structure, including committees or groups that support Plan development and implementation.

This section complies with the ***Implementation Strategy and Schedule*** *requirements for the SWRP by describing all entities responsible for IRWM/SWR Plan implementation and a community participation strategy for implementation.*

Following the adoption of the CVRWMG MOU (see **Appendix VI-C**), the Region Acceptance Process (RAP) document was submitted to the California Department of Water Resources (DWR) in April 2009. The structure and organization for the Coachella Valley IRWM Program was first developed in the RAP. The RAP was accomplished through a collaborative, consensus-seeking process using facilitation services that formalized the CVRWMG's fiduciary responsibility and authority for the IRWM planning process. It established the governance structure – a collaborative, consensus-seeking process made up of the CVRWMG, Planning Partners, Issues Groups, and stakeholders – under which the Coachella Valley IRWM Program is now managed. This established governance structure will also manage the Coachella Valley SWRP component of the IRWM/SWR Plan through management of the project database and tracking implementation of the IRWM/SWR Plan.

The current governance structure for the Coachella Valley IRWM Program allows for effective collaboration for updating and implementing the IRWM/SWR Plan. It also allows for the participation of all interested parties in IRWM/SWR planning activities; however, all final decisions are made by consensus of the CVRWMG partners. Since the approval of the RAP, the Planning Partners have evolved into a cohesive group of stakeholders representing agencies and groups throughout the Coachella Valley.

In addition to the Planning Partners, IRWM Plan development meetings held in May 2010 identified the need to work directly and separately with two stakeholder groups: Native American Tribes and DAC

representatives. These two stakeholder groups were identified for specific outreach efforts, because the CVRWMG recognized a need to increase participation among these stakeholders in the IRWM Program. Specific outreach efforts taken for Native American Tribes and DACs are described in *Section 7.5 Disadvantaged Communities Outreach* and *7.6 Tribal Outreach and Coordination*. From 2014, the CVRWMG and Planning Partners determined that Native American Tribe and DAC input could be garnered during Planning Partners meetings, rather than holding separate, redundant meetings.

The 2010 IRWM Plan envisioned formalizing subgroups of the Planning Partners into formal "Issues Groups" as requested by the stakeholders and in response to the needs of the IRWM Plan. Instead, key planning issues have been addressed in an informal manner through ad-hoc Issues Groups – where a specific planning topic is addressed through 2-3 meetings and then the group disbanded. Stakeholder outreach conducted through the Planning Partners and directed one-on-one meetings were also held to generate interest and participation in the ad-hoc Issues Groups.

The regional decision-making process – undertaken by the CVRWMG, the Planning Partners, Native American Tribal representatives, DAC representatives, and other stakeholders – involves reaching consensus on fundamental IRWM/SWR Plan goals and activities. **Figure 7-1** illustrates the Region's decision-making structure, while **Figure 7-2** shows the Region's information flow structure. These structures indicate that the Region's governance structure is collaborative in that stakeholders communicate and provide input on several different levels. These figures also show that all interested parties have the option to input their needs and comments into the IRWM/SWR planning process.

Figure 7-1: Decision Making Structure

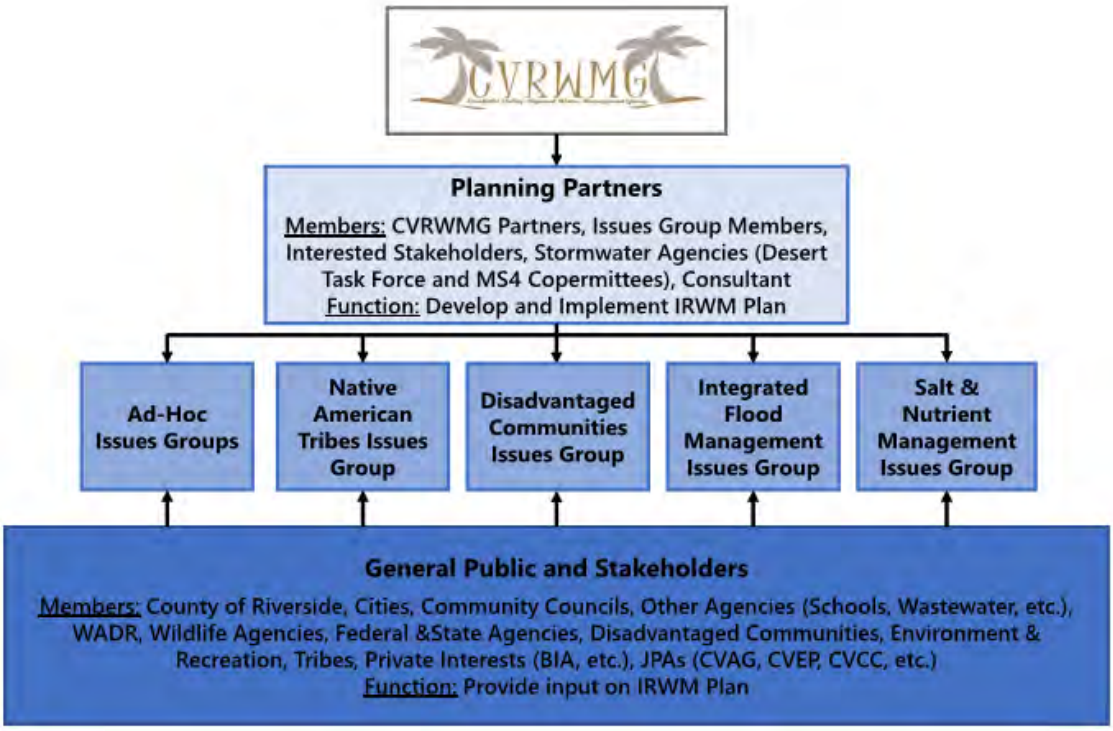
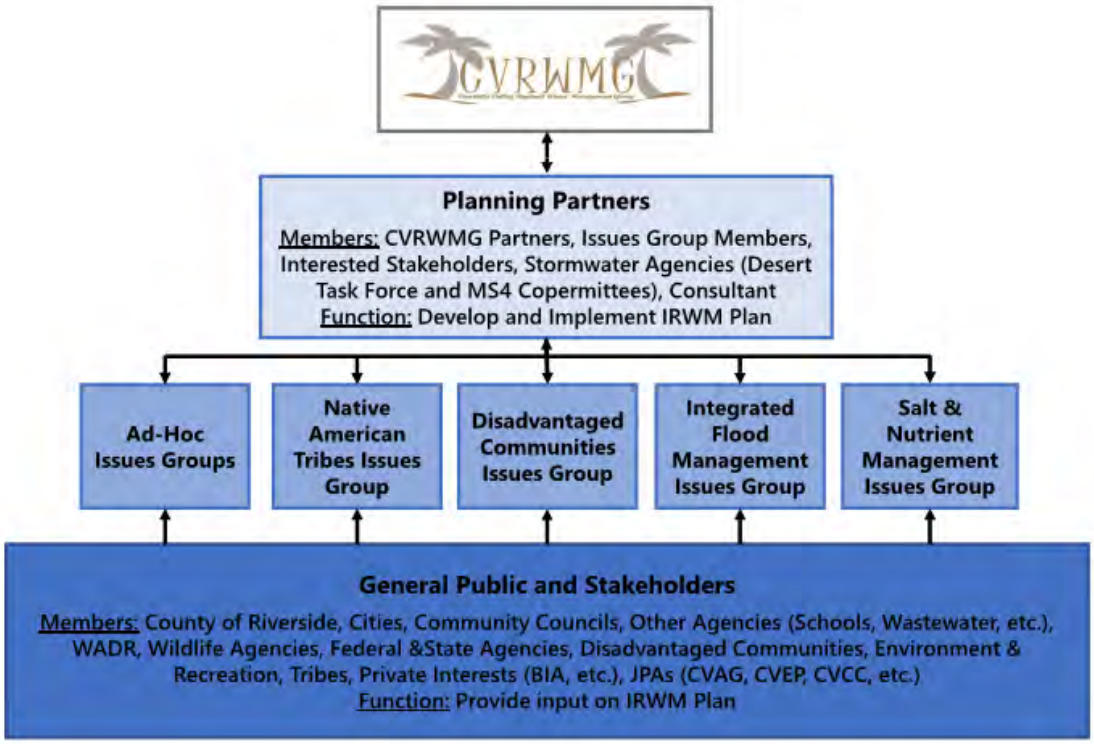


Figure 7-2: Information Flow Structure



7.2.1 Group Membership and Participation

*This section complies with the **Education, Outreach, Public Participation** requirements by outlining public education and public participation opportunities, describing mechanisms used to facilitate public participation and engage communities during IRWM/SWR Plan development, as well as during project design and implementation.*

*This section complies with the **Organization, Coordination, Collaboration** requirements for the SWRP by outlining the local agencies, nongovernmental organizations, and community participants consulted in IRWM/SWR Plan development, describing the existing integrated region water management group implementing an integrated regional water management plan, identifying agencies that need to participate in order to address the runoff management objectives of the IRWM/SWR Plan, identifying nonprofit organizations that are working on stormwater management, discussing public engagement efforts in IRWM/SWR Plan development, and describing the planning and coordination of existing local governmental agencies.*

This section describes how the CVRWMG, Planning Partners, Issues Groups, and stakeholders have been involved in IRWM/SWR Plan development and implementation. A stakeholder coordination effort has been used to provide a means for the Region's various entities with interests and/or authority over water

management in the Region to maintain an active level of involvement in the IRWM Program and IRWM/SWR planning process and implementation of the IRWM/SWR Plan. These entities have a vested interest in local water resources and can assist in articulating the needs of the Region during the planning phase, as well as implementing projects during implementation phases. These are also the entities with the greatest potential to oppose the IRWM/SWR planning effort if not engaged. Opposition to the IRWM/SWR Plan by entities with water management authority could present a significant obstacle to IRWM/SWR Plan implementation if these groups are not given ample opportunity to participate and engage in the planning effort.

The goal of public involvement is to increase awareness, understanding, and support for the Coachella Valley IRWM/SWR planning effort among the general public. The benefits of keeping the public informed of the IRWM Program and IRWM/SWR planning process, and subsequent IRWM/SWR Plan implementation include educating constituents and politicians about the importance and interrelation of water management strategies, increasing regional as well as local support for projects, generating broad-based support for continued regional coordination, and potentially increasing regional benefits as a result of integration.

All interested stakeholders and members of the general public are invited to maintain coordination with the CVRWMG and the subsequent long-term institutional structure. Individuals representing the following groups were identified as potential stakeholders and have been contacted for participation in the IRWM Program and/or IRWM/SWR planning process (stormwater stakeholders are identified by *blue italicized* text):

- *State, county, and municipal governments*
- Community councils
- *Environmental conservation and natural resources organizations*
- *Resource agencies and special interest groups*
- *Flood control districts*
- Farm Bureau and agricultural interests
- Academic institutions
- Regional planning organizations
- *Stormwater management agencies*
- *Nonprofit organizations*
- *Wastewater and water agencies*
- School districts
- Private pumpers and large landscape irrigators
- *Disadvantaged and environmental justice communities*
- Elected officials
- Native American Tribes
- Recreational interests
- *Regulatory agencies*
- Development community

In addition to formal groups and organizations, outreach was conducted to interested members of the general public, including:

- Private homeowners and off-site landowners
- Landscape architects and contractors
- Chambers of Commerce
- Commercial, industrial, and residential developers
- Homeowners associations
- Garden clubs and organizations
- Rotary clubs and other service clubs

Specific stakeholders were targeted for outreach for the SWRP components of the IRWM/SWR Plan. These included local agencies, especially water supply agencies, local municipalities, nongovernmental organizations, school districts, universities, conservancies, and other public agencies with public lands and easements that could benefit from multi-benefit stormwater capture projects. Nonprofit organizations that are currently working on stormwater planning and management in the Region were also targeted, including Pueblo Unido Community Development Corporation (CDC). Additionally, general community outreach and participation in the IRWM/SWR Plan development was promoted.

Table 7-10 lists all of the stakeholders of the Coachella Valley IRWM/SWR Plan. All stakeholders identified by the CVRWMG and Planning Partners were contacted and asked to participate in the IRWM/SWR Plan development. Meeting attendees can be viewed in meeting notes located in **Appendix VI-D** or on the CVRWMG website (http://cvrwmg.org).

Involving Stakeholders in IRWM/SWR Planning

Public access is critical to the success of the Coachella Valley IRWM Program and IRWM/SWR planning process. As such, the CVRWMG has adopted a stakeholder outreach and involvement approach that increases transparency and involvement. The CVRWMG uses a strategic approach to public outreach using the following tactics:

- Develop an initial public outreach plan that can be executed by any combination of agency staff or consultants (see **Appendix VI-E**).
- Determine best management practices for the dissemination of information for public review and for public input (e.g. print media, agency public information personnel, email and website).
- Make suggestions for establishing public meetings or reformatting of current meeting schedules to allow for additional public participation.
- Refine the timeline for the IRWM/SWR planning process in such a way that appropriate dates for notification of public meetings, workshops, sub-committee meeting, etc. can be documented and addressed in a logical and orderly manner.
- Apprise the members at each meeting, and sooner if necessary, as to the issues and needs for supporting public outreach.

The public is notified of meetings and given specific contact information, and participants are given sufficient time to prepare. The first opportunity for the public to attend IRWM Program meetings was concurrent with the Region Acceptance Process (RAP) application in October 2009; followed by opportunities during the 2010 IRWM Plan development process in June and November 2010; during the 2014 Plan development process in June 2013, September 2013, November 2013, and March 2014; and during the current 2018 IRWM/SWR Plan update process in September 2017, February 2018, August 2018, October 2018, and January 2019. The CVRWMG expects that as the process evolves, the process of soliciting the input, help and support of the public will also evolve.

Workshops are the core of stakeholder and public participation. Initial stakeholder workshops were aimed at formulation of interest groups for more specific development of concepts and funding proposals. Stakeholder workshops are generally held at key milestones of the IRWM/SWR planning process and during grant solicitations. Stakeholder workshops are organized to help guide the actions and policies of the CVRWMG and support continuous development of the proposed IRWM/SWR Plan. The CVRWMG recognizes the need and importance of public participation and will work diligently to make sure that not

only the public is heard, but that valuable advice from members of the public helps create the best IRWM/SWR process possible for the Region.

As discussed above, five Planning Partners meetings were held during development of the 2018 Coachella Valley IRWM/SWR Plan Update. During these meetings, the overall need to incorporate a SWRP into the existing IRWM Plan and the proposed updates to the IRWM Plan were discussed with stakeholders. At the September 2017 Planning Partners meeting, stakeholders participated in an exercise to determine high priority stormwater issues for the Coachella Valley. Information gathered from this exercise has been incorporated into the IRWM/SWR Plan. Stakeholders were given the opportunity to comment on the Public Draft from August 20, 2018 – September 21, 2018, including in person at the August 29, 2018 Planning Partners meeting. Stakeholder comments were addressed and incorporated into the IRWM/SWR Plan. In addition to the five Planning Partners meetings, some members of the CVRWMG regularly attend Desert Task Force meetings. The Municipal Separate Storm Sewer Systems (MS4) Co-permittees established the Desert Task Force to implement the Stormwater Management Plan (SWMP) and facilitate MS4 permit compliance. The IRWM/SWR Plan was discussed at a Desert Task Force meeting in 2017. The CVRWMG members attending the Desert Task Force meetings relayed information pertaining to the IRWM/SWR Plan Update to the Desert Task Force, as necessary. Desert Task Force members are on the IRWM/SWR stakeholder list and were invited to the Planning Partners meetings where the IRWM/SWR Plan Update was discussed and presented.

During implementation and future updates of the IRWM/SWR Plan, the CVRMWG will hold Planning Partners meetings to engage the public when considering major technical and policy issues and major milestones of the programs are met, and during open IRWM and SWGP funding solicitations.

Table 7-1 outlines the roles and responsibilities of the various stakeholders involved in the IRWM Program. All stakeholders can contribute to development and implementation of the IRWM/SWR Plan, regardless of their ability to contribute financially. Additionally, any Planning Partner or organization whose project has been selected for inclusion in an IRWM grant opportunity must formally adopt the current IRWM/SWR Plan. Other Planning Partners and stakeholder organizations are encouraged, but not required, to adopt the current IRWM/SWR Plan.

Table 7-1: Summary of Roles and Responsibilities

Issue or Action	Roles for Each Group				
	CVRWMG Agency	Planning Partners	Desert Task Force	Issues Groups	Stakeholders[1]
Plan Development	Primary	Primary	Advisory	Advisory	Participation
Project Development	Primary	Primary	Primary	Primary	Primary
Project Selection	Primary Approval	Advisory/ Recommend	Informational	Informational	Informational
Plan Approval/Adoption[2]	Primary Approval	Advisory/ Recommend	Informational	Informational	Informational
Plan Implementation	Primary	Advisory/ Recommend	Primary	Informational	Informational
Business and Fiduciary Decisions	Primary Approval	Informational	Informational	Informational	Informational

Notes:
Primary/Approval: Fiduciary responsibility and authority for approval
Advisory/Recommend: Review, participate, provide advice, and recommend
Participation: Participate and provide feedback and information
Informational: awareness, become informed and participate where needed

1. The general public has informational roles wherever the stakeholders are involved.
2. Adoption is required for CVRWMG agencies but optional for Planning Partners unless they have a project selected for implementation grant applications.

Table 7-2 provides an overview of the meeting structure and frequency for each of the various stakeholders during development of the 2014 IRWM Plan Update. Frequency of meetings corresponds to the roles and responsibilities outlined above for each group.

Table 7-2: Meeting Structure Summary

Meetings	Frequency	Purpose
CVRWMG Business Meetings	Monthly	Provide direction, financial resources, and final approval over IRWM Program activities.
Planning Partners	Quarterly	Provide guidance and recommendations for IRWM Program and IRWM/SWR Plan activities.
Issues Groups	As needed	Provide information and recommendations for specific IRWM/SWR Plan topics.
Public Workshops	IRWM/SWR Plan milestones	Provide feedback and information at key IRWM/SWR Plan milestones.

CVRWMG

The CVRWMG members consist of the five water purveyors and one wastewater agency in the Region that are further described in *Chapter 1 Introduction, Section 1.2 Regional Water Management Group*: CVWD, CWA, DWA, IWA, MSWD, and VSD. The CVRWMG is responsible for providing direction, financial resources, and final approval over the Coachella Valley IRWM Program and IRWM/SWR planning process.

Financial decision-making authority and fiduciary responsibility rest with the CVRWMG agencies' governing bodies. These governing bodies are publicly elected or appointed boards or councils, who are therefore held accountable to their electing constituents. IRWM Program and IRWM/SWR planning decisions result from a consensus of the six members of the CVRWMG through the advice and recommendations of the Planning Partners and a full stakeholder participation process.

Any qualifying entity with water management responsibilities, including Tribes, are welcome to join the CVRWMG, so long as the conditions of membership are met. In order to become a CVRWMG member, the entity requesting membership must be willing to commit to the following criteria for CVRWMG membership:

1. Possess a water management responsibility in the Coachella Valley;
2. Commit to adopting the IRWM Plan;
3. Actively participate in management and implementation of the Coachella Valley IRWM Program, including regular attendance of monthly CVRWMG meetings, Planning Partners meetings, and other essential meetings, as well as staff effort necessary to review and comment on work products;
4. Participate in funding current and future program costs;
5. Commit to transparency and accountability in governing body actions that relate to the Coachella Valley IRWM Program;
6. Commit to abide by the MOU and uphold the "Ground Rules" of the CVRWMG; and
7. Commit to work toward consensus in supporting the water management needs of the entire Coachella Valley.

Leadership and Term

The role of the CVRWMG is to provide direction, financial resources, and final approval of the IRWM/SWR Plan. The CVRWMG functions as a collaborative and all IRWM Program decisions result from consensus of the six members through a stakeholder participation process where all six members have equal power. As such, there is no chair of the CVRWMG or term of office.

The CVRWMG has used a consulting team to facilitate meetings and has also conducted meetings without use of a consultant. Those meetings conducted without a consultant team are chaired and facilitated by the CVRWMG members. The location of the CVRWMG meetings rotates among the participating agencies and, when needed, the local host may function as the facilitator. Each agency may send several representatives to participate in CVRWMG meetings; however, each agency participates as a unit in consensus building. If a CVRWMG member is unable to attend a meeting, the member must designate an alternate in his or her place to participate in all discussions and report back to other agency representatives. The CVRWMG may establish subcommittees to address particular issues or tasks.

When approved in business meetings or by other means, official actions that do not require approval by the CVRWMG agencies' governing boards are transmitted under letter signed by all six partners.

Plan Development and Outreach

The role of the CVRWMG is primarily to implement the IRWM Program and the IRWM/SWR planning process in accordance with requirements set forth by DWR, and the State Water Resources Control Board

(SWRCB), respectively. This includes developing and updating the IRWM/SWR Plan to meet DWR's Guidelines, as well as the newly formed *2015 SWRP Guidelines* from the SWRCB. Activities associated with updating and implementing the IRWM/SWR Plan allow the Region to apply for IRWM and SWGP grant funding, as well as any other State bond funding for stormwater and dry weather capture projects. CVRWMG provides funding and support for the IRWM/SWR Plan, as well as provides information and direction to the consultants assisting with development of the IRWM/SWR Plan. The CVRWMG's involvement in this IRWM/SWR planning process is critical, as the service areas of the CVRWMG agencies cover a vast majority of the IRWM/SWR planning area in the Coachella Valley.

CVRWMG members also have primary authority over implementation of the IRWM Program. To date, CVWD has submitted the IRWM Grant Program planning and implementation grant applications on behalf of the group and is administering awarded grant funding to the selected projects. The CVRWMG and its governing boards have the ultimate responsibility for the overall IRWM Program and for ensuring that the Planning Partners and all appropriate stakeholders participate as required by DWR. Through this established IRWM Program and outreach process, the CVRWMG will also facilitate participation in the SWR planning process by informing stakeholders of stormwater grant funding opportunities, and engaging stakeholders in stormwater-related issues and topics.

CVRWMG Business Meetings

The CVRWMG generally has monthly business meetings as necessary to coordinate within the group and provide the consulting team with direction.

Meeting Description and Content*:* The agenda for the meetings will set the business to be conducted, but generally includes management of the IRWM Program and other purposes identified in Sections 3 and 4 of the CVRWMG MOU (see **Appendix VI-C**). CVRWMG business meetings provide an opportunity for the CVRWMG to provide direction to the consulting team working on the IRWM/SWR Plan and related efforts. Regular meetings also allow the CVRWMG to coordinate on regional efforts, discuss regulatory concerns, and generally coordinate on water resources matters that pertain to the Coachella Valley.

Audience: Because the meeting content is technical and detailed in nature, consistent participation is required in order to maintain momentum and effectively contribute to the discussions.

Attendees*:* CVRWMG Partner agencies, as indicated in the MOU, shall have a representative at each meeting (see **Appendix VI-C**). Other attendees may be recommended by one or more CVRWMG Partners but may only attend upon consensus of all CVRWMG Partners. Business meetings are not public meetings therefore attendees are CVRWMG Partners, consulting team members and/or approved invited guests.

Documentation*:* Materials and approved notes of the CVRWMG business meetings may contain confidential information and are not public documents. Elements of the materials and summaries of actions may be prepared for public information, including publication to www.cvrwmg.org.

Planning Partners

One of the first steps in soliciting public involvement was to establish a list of key stakeholders that can serve in an advisory capacity for the IRWM Program and IRWM/SWR planning process. These key stakeholders are known as the Planning Partners, who serve as advisors to the CVRWMG. Planning Partners include but are not limited to the County of Riverside, Coachella Valley cities, interested federal and State of California (State) agencies, special districts, public agencies, non-governmental organizations,

and tribes. Membership on the Planning Partners is open to any interested party; meeting notices for the Planning Partners are sent to the entire Coachella Valley IRWM/SWR Plan distribution list so that all active stakeholders remain engaged in this process.

The Planning Partners played a valuable role in shaping key elements of establishing the IRWM Program and developing the 2010 and 2014 IRWM Plans, such as helping to establish goals and objectives, developing prioritization criteria for projects, reviewing and weighing in on draft chapters, and implementing IRWM/SWR Plan activities. Planning Partners continue to provide feedback and advise the CVRWMG on the development of the 2018 Coachella Valley IRWM/SWR Plan Update, including development of separate benefits analysis and scoring rubric for the SWR project list. The goal of the Planning Partners is balanced membership and participation from representatives of all significant water resource and stormwater issue areas in the Coachella Valley.

The Planning Partners generally meet on a quarterly basis; regular meetings have been held since 2009. The Planning Partners may not meet when the IRWM Program and IRWM/SWR planning process is not actively producing materials or deliverables and may also meet in addition to the quarterly meetings as necessary to provide recommendations on IRWM funding application activities. Moving forward, the CVRWMG will strive to conduct future Planning Partners meetings on a quarterly basis and is committed to holding Planning Partners meetings semi-annually; however, these meetings may be held more or less frequently depending upon the status of the IRWM Program and IRWM/SWR Plan development. The priority of future Planning Partners meetings will be to keep Planning Partners informed about important milestones and provide a venue for the CVRWMG to vet major decisions and discuss time-sensitive issues with the Planning Partners. At a minimum, meetings are held during key IRWM Program milestones, including project solicitation and prioritization and development of an IRWM/SWR Plan Update. Meetings may be held at variable times of day as needed and in different geographic locations within the Region. As appropriate, meetings are located near disadvantaged areas to facilitate attendance by members of the local public.

Outreach involves announcing and posting agendas, summaries, handouts, and presentations of the Planning Partners meetings on the Coachella Valley IRWM website. Additionally, all meetings and materials are announced to the Coachella Valley IRWM/SWR stakeholder email distribution list.

Leadership and Term

The Planning Partners currently do not have chairperson(s); rather the consulting team and CVRWMG members facilitate and chair meetings.

Table 7-3 provides a list of the Planning Partners that have participated in the IRWM Program since 2009.

Table 7-3: Coachella Valley Planning Partners

No.	Agency / Organization
CVRWMG	
1	City of Coachella/Coachella Water Authority
2	City of Indio/Indio Water Authority
3	Coachella Valley Water District
4	Desert Water Agency
5	Mission Springs Water District

No.	Agency / Organization
6	Valley Sanitary District
Planning Partners	
1	Agua Caliente Band of Cahuilla Indians
2	Augustine Band of Cahuilla Indians
3	Annenburg Trust at Sunnylands
4	Borrego Water District
5	Building Healthy Communities
6	Cabazon Band of Mission Indians
7	California Department of Water Resources
8	California Department of Housing and Community Development
9	California Rural Legal Assistance, Inc.
10	California State University – San Bernardino
11	Center for Collaborative Policy
12	City of Cathedral City
13	City of Desert Hot Springs
14	City of Palm Desert
15	City of Palm Springs
16	City of Rancho Mirage
17	Clean Water Action
18	Clinicas de Salud
19	Coachella Valley Association of Governments
20	Coachella Valley Economic Partnership
21	Coachella Valley Housing Coalition
22	Coachella Valley Mosquito and Vector Control District
23	Colorado River Regional Water Quality Control Board
24	County of Riverside
25	Desert Alliance for Community Empowerment
26	Desert Edge Community Council
27	Desert Empire Homes
28	Desert Healthcare District
29	Desert Highland Gateway Health & Wellness
30	Desert Task Force
31	East Valley Housing Review Committee
32	El Sol Neighborhood Educational Center
33	Environmental Justice Coalition for Water
34	Friends of the Desert Mountains
35	Hi-Lo Desert Golf Association
36	Imperial Irrigation District
37	Leadership Counsel for Justice and Accountability

No.	Agency / Organization
38	Lideres Campesinas
39	Mojave Water Agency
40	Morongo Band of Mission Indians
41	Natural Science Collaborative of the Desert Region
42	Pueblo Unido Community Development Corporation
43	Representative from Assembly Member Garcia
44	Representative from Senator Jeff Stone
45	Representative from Assembly Member Chad Mayes
46	Representative from Supervisor V. Manuel Perez
47	Riverside County Flood Control and Water Conservation District
48	Riverside County Economic Development Agency
49	Rural Community Assistance Corporation
50	Salton Community Services District
51	San Gorgonio Pass Water Agency
52	Torres-Martinez Desert Cahuilla Indians
53	Twenty-Nine Palms Band of Mission Indians
54	University of California – Irvine
55	University of California - Riverside
56	U.S. Bureau of Indian Affairs
57	U.S. Department of Agriculture

Plan Development and Outreach

The Planning Partners are the primary advisory group for development of the IRWM/SWR Plan and IRWM Program. They were involved with all facets of development of the 2010 and 2014 IRWM Plans and have been informed of and consulted on all major changes in the 2018 IRWM/SWR Plan Update. The Planning Partners are also involved in implementation of the IRWM/SWR Plan through active participation in the project submittal, development, and selection process. Planning Partners comprise many of the project submissions and are therefore essential to implementation of the IRWM/SWR Plan. In addition, Planning Partners also are instrumental facilitators in community engagement and agency coordination for both IRWM and SWR project implementation. Planning Partners also provide support for public outreach efforts. The public who wish to participate in the IRWM/SWR planning process may contact their city and district representatives of the Planning Partners and may themselves become Planning Partners through meeting attendance active engagement in the group.

Planning Partners Coordination Meetings

***Meeting Description and Content**:* The agenda for the Planning Partners meeting will be set by the content for the development of the IRWM/SWR Plan or IRWM Program and the needed materials, information, feedback and recommendations from the Planning Partners. IRWM/SWR Plan content includes advice, issue identification and characterization, goal and objective development, project development and integration and plan documentation which will be the primary meeting content. These meetings will be the

primary opportunity for the Planning Partners and CVRWMG to provide in-kind contributions and assistance to the development of the IRWM/SWR Plan and related efforts. Because Planning Partners provide feedback on the IRWM/SWR Plan and IRWM Program, these members are generally considered to contribute a significant amount of time to the IRWM/SWR planning efforts.

***Audience**:* Meeting content will be somewhat technical and detailed in nature and will benefit from consistent attendance for best results. However, as stated previously, there is no attendance policy and all IRWM/SWR stakeholders are welcome to attend.

***Attendees**:* Members of the CVRWMG agencies, consultant team, Planning Partner agencies and organizations, DAC Partners, and Tribal Partners will attend these meetings. Planning Partners include the County of Riverside, regional Cities, DAC representatives, Tribal staff and other invited water-related organizations, as named above in **Table 7-3**. Attendees may shift as the topics and content of the meeting changes, but Planning Partners are encouraged to attend each meeting to maintain consistency and understanding of the current status of the Coachella Valley IRWM Program and IRWM/SWR planning process. While these meetings are not considered public in that they are not advertised in a public venue, any interested party is welcome to attend.

***Documentation**:* Materials and work products from the Planning Partners should not contain confidential information and will be made available to the public. Meeting preparation may include meeting notices and invitations, development and distribution of presentations, and meeting handouts and minutes. All materials, presentations, and notes of the Planning Partners will be made available on the website: www.cvrwmg.org.

Desert Task Force

As stated previously, the MS4 Co-permittees established the Desert Task Force Advisory Committee to implement the Stormwater Management Plan (SWMP) and facilitate MS4 permit compliance. The 2013 MS4 Permit requires that each Permittee designates one member that is a representative to the Desert Task Force and attends meetings. The Desert Task Force is required to meet at least quarterly under the MS4 Permit. However, meetings usually occur monthly or every other month so that Permittee actions can be coordinated and discussed. Meetings include discussions on changes to regulatory framework, updates on latest Best Management Practices (BMP) technologies, and special presentations by other National Pollutant Discharge Elimination (NPDES) permit holders to discuss their programs and how they relate with those of the SWMP. These meetings are open to the public, with regulatory agencies and other local government and State agencies invited to attend. This provides an opportunity to increase public education and outreach about the ongoing implementation of the SWMP and related water quality regulatory programs. Members of the public may also provide comment on any activity that the Desert Task Force is involved in.

Issues Groups

The Coachella Valley IRWM RAP presented many issue areas which may be important to the stakeholders in the Coachella Valley and envisioned establishing separate, formal Issues Groups to address them. The format of these Issues Groups was originally envisioned as formal workgroups with specific leadership, terms, meeting, and other governance requirements. Instead, key planning issues have been addressed in an informal manner through ad-hoc Issues Groups – where a specific planning topic is addressed through 2-3

meetings and then the group is disbanded. This revised format was implemented to increase meeting attendance and effectiveness given the relatively low participation in Issues Groups meetings.

Stakeholder outreach conducted through the Planning Partners and directed one-on-one meetings were also held to generate interest and participation in the ad-hoc Issues Groups. This ad-hoc format worked well for the Region's stakeholders as it allowed them to participate in key decisions without committing to long, intensive meeting schedules.

Additional Issues Groups may be formed on an ad-hoc basis to address regional water management issues. It is envisioned that these groups will meet informally and as needed to discuss pertinent issues and will provide more formal reports back to the Planning Partners and the CVRWMG.

The information below provides a brief overview of the four Issues Groups that have been formed to date for the IRWM Program.

Native American Tribes Issues Group

The Native American Tribes Issues Group that was active during development of the 2010 IRWM Plan brought specific issues of cultural water use and special needs related to sovereign tribes in the Region. Like other Coachella Valley users, the tribes are also concerned about regional water issues such as groundwater supply and quality. Tribal principals, as well as representatives the U.S. Bureau of Indian Affairs, were included in this Issues Group. **Table 7-4** indicates the organizations that participated in the Native American Tribes Issues Group.

The Native American Tribes Issues Group met several times in 2010 and were re-contacted in 2012 as part of the 2014 IRWM Plan Update process. While tribal members met together as an Issues Group during development of the 2010 IRWM Plan, tribal members requested that the CVRWMG hold separate meetings with each tribe to discuss the 2014 Plan Update. One meeting was held with each tribe during development of the 2014 IRWM Plan Update to gain feedback and information. In the future as the Region moves forward in implementing new Tribal projects, the Issues Group may be re-convened to provide further input and information.

Tribal representatives are considered valued and active members of the Planning Partners and are invited to all Planning Partners Meetings. Additional tribal outreach efforts that were undertaken for the 2014 IRWM Plan Update are described in detail in *Section 7.6 Tribal Outreach and Coordination* below.

Table 7-4: Native American Tribes Issues Group Participants

Organization
Agua Caliente Band of Cahuilla Indians
Augustine Band of Mission Indians
Cabazon Band of Mission Indians
Morongo Band of Mission Indians
Torres-Martinez Desert Cahuilla Indians
Twenty-Nine Palms Band of Mission Indians
Bureau of Indian Affairs
Indian Health Services
Tribal Environmental Protection Agency

Disadvantaged Community Issues Group

DAC needs and issues were identified as special and different from other groups at the initiation of planning efforts in 2009. The DAC Issues Group and meetings began in May 2010. Participants of the DAC Issues Group were contacted and reconvened in 2012 for the DAC Outreach Program. DAC Issues Group members were initially contacted via phone and via email for informal meetings that were held to gain feedback and information on efforts taken to date and determine interest in continuing on with the DAC Outreach effort. **Table 7-5** indicates the organizations that were asked to and participated in meetings of the DAC Issues Group.

In late 2012 and 2013, the DAC Issues Group was convened for DAC Workshops associated with the DAC Outreach Program (refer to *Section 7.5 Disadvantaged Communities Outreach* for more information on this effort). For the DAC Workshops, members of the Issues Group were included in all stakeholder outreach and email notifications, and members of the DAC Issues Group were encouraged to participate in this effort.

In late 2012, the Coachella Valley IRWM Program conducted technical outreach directed to DACs via the Issues Groups and Planning Partners during the project solicitation process for Proposition 84-Round 2 Implementation Grant funding. This outreach involved a workshop on October 11, 2012 to provide technical assistance to DACs, DAC representatives, and any other interested IRWM/SWR stakeholders when submitting their projects into the online project database (refer to *Chapter, 9 Project Evaluation and Prioritization* for more information).

For the 2014 IRWM Plan Update, members of the DAC Issues Group were again contacted to participate in an evaluation of groundwater quality within DACs. This evaluation, the *DAC Groundwater Quality Evaluation,* is discussed in detail in *Chapter 10 Agency Coordination.* The evaluation included meeting presentations that took place in September 2012, December 2012, June 2013, and September 2013 and were co-hosted with the DAC Workshops.

In the future as the Region moves forward in implementing new DAC projects, the Issues Group may be re-convened to provide further input and information.

Table 7-5: DAC Issues Group Participants

Organization
California Rural Legal Assistance, Inc.
Clean Water Action
Community Water Center
Desert Alliance for Community Empowerment
Desert Edge Community Council
El Sol Neighborhood Educational Center
Environmental Justice Coalition for Water
Loma Linda University
Pueblo Unido Community Development Corporation
Poder Popular
Representative from Assembly Member Perez

Salt and Nutrient Management Planning Issues Group

Development of the 2014 IRWM Plan Update included technical work to prepare work plan for a future Salt and Nutrient Management Plan (SNMP) for the Coachella Valley (refer to *Chapter 10 Agency Coordination* for more information). For this effort, a SNMP Issues Group was convened. In accordance with the Recycled Water Policy, the CVRWMG targeted Issues Group attendance to those stakeholders with a vested interest in groundwater and recycled water management. **Table 7-6** indicates the organizations that were asked to and participated in the SNMP Issues Group.

The SNMP Issues Group met three times in 2012 (August 22, September 26, and November 28), and provided feedback and comments to the technical team who prepared the SNMP Work Plan. In the future, as the Region moves forward in developing a SNMP, the SNMP Issues Group may be re-convened to provide further input.

Table 7-6: Salt and Nutrient Management Plan Issues Group

Organization
Agua Caliente Band of Cahuilla Indians
Augustine Band of Mission Indians
Hi-Lo Desert Golf Course Superintendent's Association
Myoma Dunes Water Company
Regional Board
Salton Community Services District
General Public (Farmer)

Integrated Flood Management Issues Group

Development of the 2014 IRWM Plan Update included a technical evaluation to explore possibly opportunities to implement integrated flood management in the Coachella Valley (refer to *Chapter 10 Agency Coordination* for more information). For this effort an Integrated Flood Management Issues Group

was convened. All IRWM Program stakeholders were asked to participate in Issues Group meetings; although, the CVRWMG targeted attendance to those stakeholders with a vested interest in flood management and flood control in the Coachella Valley. **Table 7-7** indicates the organizations that were asked to participate in the Integrated Flood Management Issues Group.

The Integrated Flood Management Issues Group met a total of two times in 2013 (January 15, 2013 and September 18, 2013), and provided feedback and comments to the technical team who prepared the Integrated Flood Management Technical Evaluation. In the future as the Region moves forward in implementing integrated flood management projects, the Integrated Flood Management Issues Group may be re-convened to provide further input and information.

Table 7-7: Integrated Flood Management Issues Group

Organization
Agua Caliente Band of Cahuilla Indians
City of Cathedral City
City of Desert Hot Springs
City of Rancho Mirage
Coachella Valley Association of Governments
Coachella Valley Mosquito and Vector Control District
County of Riverside, Supervisor Benoit
County of Riverside, Transportation Department
Pueblo Unido Community Development Corporation
Salton Community Services District

Stakeholders

Any member of the public who has an investment in or concern with water management in the Coachella Valley is considered an IRWM stakeholder. No leadership or term of office is specified for stakeholders. Similarly, any member of the public with an interest in or that will have an impact from stormwater management in the Coachella Valley is considered a SWRP stakeholder, including local ratepayers, developers, locally regulated commercial and industrial stakeholders, nongovernmental organizations, nonprofit organizations, and the communities surrounding SWRP projects. These stakeholders are identified in **Table 7-10**.

The core of general public participation and communication will be through public workshops. Through these workshops, the CVRWMG and Planning Partners can solicit input and support from the public. The public is also welcome to attend Planning Partners meetings; however, as noted above when describing the Planning Partners, consistent meeting attendance is encouraged to stay abreast of IRWM Program and IRWM/SWR planning issues.

Public Workshops

Public workshops may or may not occur on the same day as business meetings or Planning Partner meetings. Workshop topics could include water cost management, groundwater, water quality, water conservation, habitat conservation, and stormwater/flood management. Public workshops may be held at variable times

of day as needed and in different geographic locations within the Region. As appropriate, meetings will be located near disadvantaged areas to facilitate attendance by members of the local public.

The first opportunity for the public to attend IRWM Program meetings was concurrent with the RAP application in October 2009; followed by opportunities during the 2010 IRWM Plan development process in June and November 2010; during the 2014 IRWM Plan Update process in June, September, and November 2013, and March 2014; and the current opportunity is during public comment for this IRWM/SWR Plan in August 2018. In accordance with Section 10543 of the California Water Code, a notice for the May 2018 Public Workshop was published on social media and the workshop was advertised to all stakeholders through the IRWM/SWR stakeholder email list. For the 2014 IRWM Plan Update, the CVRWMG took a "go to them" approach to public involvement and conducted eight additional, focused public workshops with stakeholders who should be aware of and invested in the IRWM Program. **Table 7-8** summarizes the Public Workshops held for this IRWM/SWR Plan.

Table 7-8: Public Workshops Held for Coachella Valley IRWM/SWR Plan

Group	Meeting Date	Meeting Location	Number of Participants
2010 IRWM Plan			
All Coachella Valley IRWM Stakeholders	October 29, 2009	Rancho Mirage Public Library 71100 Hwy 111, Rancho Mirage CA	47
All Coachella Valley IRWM Planning Partners and Stakeholders	June 22, 2010	Rancho Mirage Public Library 71100 Hwy 111, Rancho Mirage CA	31
All Coachella Valley IRWM Planning Partners and Stakeholders	November 10, 2010	Residence Inn Palm Desert 38305 Cook Street, Palm Desert, CA	25
2014 IRWM Plan Update			
All Coachella Valley IRWM Planning Partners and Stakeholders	Quarterly Planning Partners Meetings Held and All IRWM Stakeholders Invited to Participate		
All Coachella Valley IRWM Planning Partners and Stakeholders	November 6, 2013	Coachella Valley Water District 75-515 Hovley Lane East Palm Desert, CA 92211	30
County Planning Commission –Desert Location	December 4, 2013	City of La Quinta Council Chambers 78-495 Calle Tampico La Quinta, CA 92253	-[1]
CVAG Technical Advisory Committee	November 11, 2013	CVAG Offices 73-710 Fred Waring Drive, Suite 119 Palm Desert, CA 92260	-[1]
CVAG Energy/Environmental Resources Workgroup	November 14, 2013	CVAG Offices 73-710 Fred Waring Drive, Suite 119 Palm Desert, CA 92260	-[1]

Group	Meeting Date	Meeting Location	Number of Participants
Regional Board	November 14, 2013	RWQCB Offices 73-720 Fred Waring Drive, Suite 100 Palm Desert, CA 92260	-[1]
MS4 Co-permittees – Stormwater Desert Task Force	November 13, 2013	Palm Desert Administrative Conference Room, 73-510 Fred Waring Drive, Palm Desert, CA	-[1]
Coachella Valley Irrigated Lands Coalition	November 5, 2013	Peter Rabbit Farms 85810 Peter Rabbit Lane Coachella, CA 92236	-[1]
Desert Valley Builders Association	November 7, 2013	City of Rancho Mirage 69-825 Highway 11 Rancho Mirage, CA	-[1]
2018 IRWM/SWR Plan Update			
MS4 Co-permittees – Stormwater Desert Task Force	March 8, 2017	City of Palm Desert 73510 Fred Waring Drive Palm Desert, CA 92260	-[1]
All Coachella Valley IRWM/SWR Planning Partners and Stakeholders	September 28, 2017	Coachella Valley Water District 75-515 Hovley Lane East Palm Desert, CA 92211	24
All Coachella Valley IRWM/SWR Planning Partners and Stakeholders	January 17, 2018	Coachella Valley Water District 75-515 Hovley Lane East Palm Desert, CA 92211	22
All Coachella Valley IRWM/SWR Planning Partners and Stakeholders	August 29, 2018	Coachella Valley Water District 75-515 Hovley Lane East Palm Desert, CA 92211	
All Coachella Valley IRWM/SWR Planning Partners and Stakeholders	October 2018	TBD	
All Coachella Valley IRWM/SWR Planning Partners and Stakeholders	January 2019	TBD	

1. Attendance information is not available, because these meetings were not hosted by the CVRWMG.

Meeting Description and Content: The agenda for the Public Workshops will be the topical IRWM/SWR Plan content and information that is ready for public exposure, comment and feedback. IRWM/SWR Plan content issues and decisions will be presented, and comments and feedback requested and a variety of formats may be used. These workshops will be the primary opportunity for the public and agencies or groups that do not participate in the Planning Partners to provide advice, comment and feedback on the IRWM/SWR Plan and related efforts.

Audience*:* Workshop content will be developed for public presentation and be presented in the most nontechnical manner possible. These meetings will review prior steps and will not rely on consistent participation.

***Attendees**:* Members of the CVRWMG agencies and Planning Partners will attend in addition to the general public and agencies or groups that do not participate in the other meetings but are interested in the IRWM/SWR planning process or issues to be included in the IRWM/SWR Plan.

***Documentation**:* Workshop preparation will include public workshop notices and invitations, development and distribution of public workshop presentations, workshop handouts and minutes, distribution of comment/feedback questionnaires, and compilation and summarization of public responses obtained during the workshops. All materials, presentations, and notes of the public workshops will be made available on the website: www.cvrwmg.org.

7.3 Effective Decision-Making

This section describes how decisions are made at the regional level and how decisions are made within the CVRWMG.

The regional decision-making process – undertaken by the CVRWMG, the Planning Partners, and other stakeholders – involves discussing and vetting fundamental IRWM Program goals and activities. **Figure 7-1** (above) illustrates the Region's organizational structure.

The CVRWMG's approach to decision-making with respect to the development and implementation of the IRWM/SWR Plan includes a high level of involvement by the Planning Partners and stakeholders. Given that the Planning Partners already contributed substantially to the individual components of the 2010 and 2014 IRWM Plans, they were involved in major proposed changes and additions to the original IRWM Plan during development of this 2018 IRWM/SWR Plan Update. The Planning Partners are tasked with providing input on development and implementation of the IRWM/SWR Plan, with the CVRWMG providing direction, financial resources, and final approval of the draft IRWM/SWR Plan. As discussed above in *Section 7.2 Structure and Organization*, additional ad-hoc workgroups may be convened to address other issues, as needed.

The CVRWMG and Planning Partners used a consensus-seeking protocol and broad-based stakeholder participation format for decision-making for IRWM Plan development in 2010 and 2014 and continued this approach to make key decisions associated with updating the IRWM/SWR Plan.

7.3.1 CVRWMG Decision Making Process

The decision-making process outlined in the CVRWMG Groundrules is based on the principles of consensus. The CVRWMG Groundrules are part of the RAP, and they help to define the governance structure, purpose, and decision-making process for the CVRWMG. Decisions by the CVRWMG are made based on agreement among all the participants. To build consensus, an effort is made to meet the interests of all participating CVRWMG members. In addition, if members reach consensus on some but not all of the issues under discussion, they can only go forward with recommendations on the agreed-upon issues. For issues that still remain, members may agree upon a statement that delineates the areas of disagreement and propose a process for the resolution of these differences in the future.

CVRWMG members are expected to characterize the concerns and positions of the agency/organization they represent and to support consensus-based recommendations to their respective Boards. The decisions, recommendations, and final work product must be acceptable to every CVRWMG member.

7.4 Balanced Access and Opportunity for Participation

This section describes the manner in which the governance structure ensures a balance of interested persons or entities representing different sectors and interests, and provides them the opportunity to participate, regardless of their ability to contribute financially to the IRWM/SWR Plan. This section complies with the ***Organization, Coordination, Collaboration*** *requirements for the SWRP by highlighting the community participation provided for in IRWM/SWR Plan development and discussing public engagement efforts in IRWM/SWR Plan development. This section also complies with the* ***Education, Outreach, Public Participation*** *requirements by describing mechanisms used to facilitate public participation during IRWM/SWR Plan development.*

The current governance structure allows for the participation of all interested groups to take part in the development and implementation of the Coachella Valley IRWM/SWR Plan. No structures have been created that would bar the participation of those interested in being part of the IRWM/SWR planning process. The CVRWMG has invited participation from all stakeholders identified throughout the Coachella Valley. This open representation approach allows for the representation of stakeholders without regard to economic status or other constraints. The governance structure was created to achieve regional solutions that address the concerns of all stakeholders, DACs, tribes, and the environmental community through a collaborative and multi-stakeholder approach. See *Section 7.2.1 Group Membership and Participation* (above) for the specific procedures in place to ensure an equal playing field amongst all stakeholders involved in the Coachella Valley IRWM/SWR Plan. The roles, their responsibilities, and time commitment (if any) within the governance structure are also detailed in the above *Section 7.2.1 Group Membership and Participation*.

The CVRWMG holds an open invitation for participation to all groups within the region. One area where additional participation is expected is from a diverse group of DAC communities. The DAC Outreach Demonstration Program, described in *Section 7.5 Disadvantaged Communities Outreach* and in the *Chapter 4 Disadvantaged Communities*, helped to better develop Region-wide DAC participation.

7.4.1 Outreach Activities

Beyond participation in the numerous outreach and involvement meetings outlined in *Section 7.2.1 Group Membership and Participation*, local stakeholders may become involved in the IRWM Program through the following outreach mechanisms. The activities listed below encompass the general tool box of outreach mechanisms that may be employed by the CVRWMG; these tools have been implemented as appropriate and may be implemented in the future if appropriate.

Website

A Coachella Valley IRWM website was developed – www.cvrwmg.org – as a key component of the regional outreach program. The website contains a wealth of information about the IRWM Program, including: explanation of the IRWM Program and funding opportunities; issues identification, goals and objectives, and other planning materials; the adopted IRWM/SWR Plan; information about potential IRWM/SWR Plan projects to be included in Proposition 1 grant applications; information about the CVRWMG; Planning Partners, and Issues Group meeting agendas, summaries, and presentations; and other

helpful links. The Coachella Valley IRWM website will also contain SWRP information and outreach by the CVRWMG specific to stormwater management efforts.

Fliers/Notices

Information regarding upcoming meetings may be relayed to the general public via fliers posted at community facilities, city and county office buildings, and announcements published in local newspapers and organizational newsletters. An electronic newsletter may be produced regularly at major milestones of the IRWM Program, as needed to ensure stakeholders are being engaged.

Press Releases

Local newspapers are encouraged to provide coverage of meetings or to provide updates on the progress of IRWM/SWR planning efforts. Media relations provide a credible and economic approach to achieving widespread dissemination of key project information. Studies show that information presented to the public through a third party, such as the media, is more readily believed by the public, as opposed to advertising or other methods of information coming directly from the source. Primary press outreach will be associated with kickoff and early awareness efforts early in the project. Press releases may be released quarterly and at major milestones of the IRWM Program or IRWM/SWR planning process, including an open "Call for Projects" and IRWM/SWR Plan approval, but may be issued at other important junctures.

Online Project Database

To facilitate communications among planners and project proponents, the CVRWMG has developed an online project database aimed at providing universal access to information about IRWM/SWR Plan projects in the Region. The project database allows project proponents and other interested parties to add, edit, and review project proposals throughout the Region. This tool, coupled with the Public Workshops, is intended to connect stakeholders with one another to identify and enhance synergies among projects, hopefully leading to better integration and stronger partnerships. The online project database will also enhance CVRWMG efforts to inform the general public about "what is IRWM/SWR" through concrete project examples.

During the 2018 IRWM/SWR Plan update, the online project database was updated to include applicable fields to enter SWR projects. SWR projects submitted to the online project database are included in the "living" SWRP project list. These projects are scored and ranked per SWRP Guideline requirements. The database will continue to be an important tool in the SWRP implementation, providing the platform to enter new projects, and update projects as necessary, and serving as the basis for any SWRP future updates as needed.

Correspondence

An electronic distribution list of stakeholders and interested parties, and any special subgroups, has been developed and maintained for the IRWM Program and has now been updated to include stormwater stakeholders. E-mail notices, the primary method of communication, will be sent to announce the availability of new materials on the Coachella Valley IRWM website, meeting minutes, upcoming meetings, and to solicit feedback on minor items. In addition, correspondence with stakeholders occurred during the process of developing the IRWM/SWR Plan. For example, while soliciting SWR projects to include in the plan, specific outreach to stormwater project proponents via email was conducted to gather

information and follow up on project submissions. Finally, the Coachella Valley IRWM website will also provide a means of communication for information and outreach related to IRWM and SWRP activities.

7.4.2 Effective Communication – Both Internal and External to Region

This section describes the various communications efforts that are fostered by the Coachella Valley IRWM/SWR Plan governance structure with the different functional groups within the CVRWMG, stakeholders, neighboring RWMGs, government agencies, and the public.

CVRWMG

The CVRWMG's two-way communication primarily occurs during the scheduled monthly business meetings. Communication with each of the members also occurs through correspondence via telephone, email, and office visits. The CVRWMG communicates to Planning Partners and the public through email, at Planning Partner meetings, and public workshops. The CVRWMG also communicates with the public via their website (http://www.cvrwmg.org/) with information pertaining to the IRWM Program and IRWM/SWR planning process.

Project Proponents

Potential project proponents are provided information on the "Call for Projects" through email, at Planning Partner meetings, through open houses to provide technical support, and at public workshops. The "Call for Projects" for grant solicitations are released via the email list serve and information is made available to all potential project proponents. One of the primary means of communication for project proponents is through an online project database. This database was created to facilitate communication among the project proponents, as well as provide universal access to information about the IRWM and SWR projects in the Region. Public workshops and DAC-specific meetings were held to aid and support for project proponents. The review and integration of proposed projects was done through communication between stakeholders, Planning Partners, and the CVRWMG at meetings and all information is available on the website database.

Substantial outreach has been conducted to project proponents that may implement projects that address critical water quality or water supply issues of DACs. As described in *Chapter 9 Project Evaluation and Prioritization*, it is anticipated that this outreach will continue for future IRWM/SWR funding rounds.

Stakeholders and Public

Primary method of communication for stakeholders and the public is via email, meetings, and public workshops. This enables stakeholders and the public to help guide the actions and policies of the CVRWMG and support the development of the IRWM/SWR Plan. Both stakeholders and the public also communicate to the CVRWMG via representation from the Planning Partners.

Neighboring RWMGs

The Coachella Valley Groundwater Basin and subbasins of the adjacent IRWM regions, listed in *Chapter 10 Agency Coordination, Section 10.1.2 Neighboring and/or Overlapping IRWM/SWR Efforts*, do not have hydraulic connections, therefore planning efforts have remained separate from the Coachella Valley IRWM/SWR Plan. For a map of the agencies that may have existing or developing IRWM/SWR planning efforts that are adjacent to the Region, see **Figure 10-1** (*refer to Chapter 10 Agency Coordination*).

As described in *Chapter 10 Agency Coordination*, two meetings were held with the neighboring RWMGs within the Colorado River Funding Area in 2012 and 2013. Even though the stakeholders between these regions do not overlap and the surrounding planning regions are distinctly separate, the governance structure has established regular formal communication with the adjacent RWMGs. During the 2016 DAC Involvement Grant Solicitation, the CVRWMG coordinated with the Mojave, Imperial, and San Gorgonio Regions to prepare a joint funding application for the Colorado River Funding Area. The regions held meetings in April, July, and October 2016, and March and April 2017 to coordinate on application preparation. As part of the DAC Involvement Grant program, a funding area-wide DAC Needs Assessment will be prepared. During the development of the Needs Assessment, the Regions will continue to meet and coordinate as necessary.

Neighboring RWMG and Coachella Valley IRWM/SWR Plan representatives continue to be invited to attend Planning Partners meetings, public meetings, and workshops on the Coachella Valley IRWM/SWR Plan, and representatives from the Anza Borrego, Imperial, Mojave, and San Gorgonio Regions are considered members of the Planning Partners.

The CVRWMG also works with neighboring RWMGs and other RWMGs in the State through the Roundtable of Regions, which is a consortium of IRWM Regions throughout California. The CVRWMG regularly participates in Roundtable of Regions meetings, generally via conference call. These efforts help to ensure that the Region is kept up-to-date regarding various IRWM/SWR efforts in California and can provide feedback to the DWR and other parties interested in IRWM/SWR planning as applicable.

Government Agencies

State agencies, federal agencies, and nongovernmental organizations (NGOs) who have an advisory role within the governance structure take part in the development and implementation of the IRWM/SWR Plan process as Planning Partners, and stakeholders. Government agencies which have direct or significant water-related missions have been invited to participate in the Planning Partners meetings. Local agencies such as the County of Riverside, Riverside County Flood Control and Water Conservation District (RCFCWCD), United States Bureau of Indian Affairs (US BIA), Coachella Valley Association of Governments (CVAG), and Colorado River Regional Water Quality Control Board (Regional Board) have an advisory role as part of the Planning Partners.

7.4.3 Open Door Policy

The CVRWMG provides a contact person on the IRWM Program website and welcomes new stakeholders to contact them; the CVRWMG contact will orient them to the various IRWM/SWR planning processes, encourage them to access information about the IRWM/SWR Plan, and inform them how they can participate. The CVRWMG is working with the Planning Partners to ensure that they acknowledge the specialized needs of some participants, in particular Tribes and DACs. These extra efforts have included public meetings in and near or in target communities, shifting meeting times so certain stakeholders can attend, and providing translation services. In addition to formal meetings, the CVRWMG has taken a "go-to-them" approach and has scheduled meetings with various stakeholders and stakeholder representatives for one-on-one meetings to solicit additional input on development of the 2014 IRWM Plan Update. The 2014 IRWM Plan Update process involved one-on-one meetings with the following organizations:

- Agua Caliente Band of Cahuilla Indians
- Augustine Band of Mission Indians
- Cabazon Band of Mission Indians
- Torres-Martinez Desert Cahuilla Indians

- Twenty-Nine Palms Band of Mission Indians
- Riverside County Department of Public Health
- North Shore Community Council
- Sky Valley Community Center
- Supervisor Benoit's Office (County of Riverside)
- Colorado River Regional Water Quality Control Board
- City of Rancho Mirage
- Poder Popular
- California Rural Legal Assistance, Inc.
- Pueblo Unido Community Development Corporation
- El Sol Neighborhood Educational Center
- Loma Linda University

Further, the CVRWMG is committed to providing information on the IRWM Program and IRWM/SWR planning process to all stakeholders regardless of their access to web-based or email services. The Coachella Valley IRWM/SWR Plan is available at CVRWMG agency offices and local public libraries. The CVRWMG is also willing to provide access to material for any stakeholder that requests this information.

7.5 Disadvantaged Communities Outreach

This section describes the manner in which the governance structure ensures a balance of interested persons or entities representing different sectors and interests, and provides them the opportunity to participate, regardless of their ability to contribute financially to the IRWM/SWR Plan. This section complies with the ***Organization,*** *Coordination****, Collaboration*** *requirements for the SWRP by highlighting the community participation provided for in IRWM/SWR Plan development and discussing public engagement efforts in IRWM/SWR Plan development. This section also complies with the* ***Education, Outreach, Public Participation*** *requirements by describing mechanisms used to facilitate public participation during IRWM/SWR Plan development, strategies used to engage DACs, and efforts to address environmental injustice issues.*

The Coachella Valley has a wide range of DACs from different demographics, including migrant and seasonal farm workers, very low-income families, urban residents, and low-income seniors. Water management issues that have been identified to date by DAC representatives include arsenic in drinking water supplies, sanitation needs to protect groundwater, on-site flooding, health and safety and, in general, affordability and accessibility of water. The goal of DAC outreach is to identify and obtain input from groups that may be otherwise limited from participating in the IRWM/SWR planning and implementation efforts due to financial and other constraints. These efforts directly identify and address environmental injustice issues within the watershed. By conducting DAC outreach, the CVRWMG seeks to ensure that the needs of underprivileged communities are heard. In the era of climate change, DAC outreach is especially important since DACs are climate vulnerable communities. Due to lack of resources and deficient infrastructure, DACs are more sensitive to the environmental stressors that result from climate change and are less prepared for climate adaptation.

The information provided below includes overall outreach and stakeholder involvement associated with DACs. For specific information about the location, nature, and issues of DACs please refer to *Chapter 4 Disadvantaged Communities.*

7.5.1 Outreach Activities

As discussed in *Chapter 4 Disadvantaged Communities,* the CVRWMG identified the opportunity for more comprehensive efforts relating to DAC outreach and was awarded a DAC Outreach Demonstration Program grant from DWR to develop a program that increases DAC participation in IRWM/SWR planning and activities that could be applied to other, similar, IRWM regions. The DAC Outreach Demonstration Program consists of seven components, five of which are described in detail in *Chapter 4 Disadvantaged Communities:* Outreach Activities, DAC Mapping, DAC Project Development, Participation in regional IRWM/SWR Effort, and DAC Outreach Program Model. The other two components are the DAC Chapter of this IRWM/SWR Plan (Chapter 4) and a DAC Outreach Plan that provides an overview summary of the DAC Outreach Demonstration Program. The DAC Outreach Plan is available on the DAC section of the CVRWMG website (http://cvrwmg.org/dac.php) and included as part of **Appendix VI-E** to this IRWM/SWR Plan.

Through targeted outreach to economically disadvantaged communities, the CVRWMG learned more about the major water-related concerns facing these groups such that long-term implementation of the IRWM/SWR Plan is responsive to those needs. This effort built upon the work conducted by the DAC Planning Group, established in 2007 to track the progress of DAC Programs under Proposition 84. The DAC Planning Group consists of 29 representatives, who are listed in *Chapter 4 Disadvantaged Communities.*

Numerous local and Statewide DAC organizations were targeted by the Coachella Valley IRWM Program and have been considered invaluable partners in gathering materials and information about DACs during outreach for the Coachella Valley IRWM Program. Those organizations that have been heavily involved in DAC Outreach associated with the IRWM Program include:

- California Rural Legal Assistance Inc. (CRLA)
- Catholic Charities of San Bernardino/Riverside
- Desert Alliance for Community Empowerment
- Desert Edge Community Council
- Desert Hot Springs Family Resource Center
- El Sol Neighborhood Educational Center
- Environmental Justice Coalition for Water (EJCW)
- Inland Congregation United for Change (ICUC)
- Loma Linda University (LLU)
- Pueblo Unido CDC
- Poder Popular
- San Jose Community and Learning Center

Directed DAC Outreach Efforts

Prior to the DAC Outreach Program, the Region conducted DAC outreach through the DAC Issues Group. The DAC Issues Group, described in *Section 7.2.1 Group Membership and Participation*, consisted of groups, agencies, and individuals that either work on DAC projects or represent DAC needs in the Region. The DAC Outreach Program expanded on the efforts of the DAC Issues Group and identified and encouraged expanded participation by DACs in the Coachella Valley IRWM Program. As explained in detail in *Chapter 4 Disadvantaged Communities,* during the DAC Outreach Program, the CVRWMG

contracted with three non-profit groups in the Region (El Sol Neighborhood Educational Center, Pueblo Unido CDC, and Loma Linda University) to expand DAC outreach beyond that conducted for the IRWM Program. Weekly meetings were held with the non-profit partners throughout the duration of their contracts to gain input on the work being conducted and ensure that the IRWM Program was in alignment with the DAC Outreach Program efforts.

Additionally, five DAC workshops were conducted for the DAC Outreach Program with the goals of increasing understanding of the IRWM Program and refining water issues and challenges in DACs, defining the mission and water management objectives, soliciting integrated DAC projects for the IRWM Program, assessing proposed DAC projects, and presenting the draft 2014 Coachella Valley IRWM Plan. The workshops were co-hosted with Planning Partners meetings in September and December 2012 to increase participation among all IRWM stakeholders. The final DAC Workshop was co-hosted with the public meeting to announce and release the Public Draft 2014 IRWM Plan; this meeting took place on November 6, 2013. A complete list of the DAC Workshops is below in **Table 7-9**.

Table 7-9: DAC Workshops Held for Coachella Valley IRWM Program

Group	Meeting Date	Meeting Location	Number of Participants
All Coachella Valley IRWM Planning Partners and Stakeholders	September 13, 2012	Coachella Valley Water District 75-515 Hovley Lane East Palm Desert, CA	25
All Coachella Valley IRWM Planning Partners and Stakeholders	December 13, 2012	Coachella Valley Association of Governments, Room #115 73-710 Fred Waring Drive Palm Desert, CA 92260	23
Eastern Coachella Valley DAC Representatives and Interested Parties	June 18, 2013	San Jose Community and Learning Center 69455 Pierce Street Thermal, CA 92274	25
Western Coachella Valley DAC Representatives and Interested Parties	June 20, 2013	DHS Family Resource Center 14201 Palm Drive, Suite 108 Desert Hot Springs, CA	25
All Coachella Valley IRWM Planning Partners and Stakeholders	November 6, 2013	Coachella Valley Water District 75-515 Hovley Lane East Palm Desert, CA 92211	30

The DAC Outreach Program recognized that a variety of methods may be necessary to effectively communicate with DACs in the Region, and that not all community members may have access to computers or the internet or use English as their primary language. To address communication concerns, the CVRWMG reached out to DACs by posting information and announcements on the CVRWMG website; posting announcements at community centers, churches, and other popular areas; conducted bilingual outreach – with announcements and at meetings; and distributing information via email and postal mail. Two bilingual outreach meetings were held in June 2013 and were attended by over 100 people.

To assist with improving outreach to DACs and identifying the water supply and water quality needs and challenges facing DACs, the CVRWMG has also conducted outreach targeted at leaders of DAC and EJ groups in the Region. To this end, the CVRWMG has held 12 meetings with DAC and EJ leaders, 18

meetings with the Coachella Valley Advisory Committee (now part of the Planning Partners), five workshops to educate DACs about local water issues, and developed a DAC page on the CVRWMG website (http://cvrwmg.org/dac.php). In addition, to identify DAC stormwater needs, the CVRWMG conducted outreach to include DAC projects in the call for SWR projects. As a result, a collection of stormwater projects for DAC residents was included in the IRWM/SWR Plan, including the Pierce Community Stormwater Project and the Avenue 76 Community Stormwater Control Project. This is further discussed in *Chapter 9 Project Evaluation and Prioritization, Section 9.5 Stormwater Project Evaluation and Prioritization*.

CVRWMG Coordination

The CVRWMG has taken an active role in the DAC Outreach Program and participated in the five DAC workshops as well as the weekly calls with the non-profit partners. Ongoing tracking of DAC involvement throughout the IRWM/SWR planning process is conducted by documenting DAC projects submittals, as well as outreach meetings that occur with DAC community leaders. Moving forward, if the CVRWMG and Planning Partners determine that a permanent advisory group is appropriate and desired, at least one DAC representative from the CVRWMG should be designated to serve on the advisory group. As noted above in *Section 7.2.1 Group Membership and Participation* regarding Issues Groups, planning issues (including those pertaining to DACs) have been addressed in an informal manner through ad-hoc Issues Groups. This format was implemented due to low stakeholder turnout at DAC Issues Groups meetings and was revised to increase meeting attendance and effectiveness. As such, the CVRWMG does not think it is realistic to implement a DAC-specific advisory group.

7.6 Tribal Outreach and Coordination

This section defines local tribes and describes how they are specifically invited to participate in the IRWM/SWR planning and implementation process. This section complies with the ***Organization, Coordination, Collaboration*** *requirements for the SWRP by highlighting the community participation provided for in IRWM/SWR Plan development and discussing public engagement efforts in IRWM/SWR Plan development. This section also complies with the* ***Education, Outreach, Public Participation*** *requirements by describing mechanisms used to facilitate public participation during IRWM/SWR Plan development.*

As described in *Chapter 2 Region Description*, most lands within the Coachella Valley are either private lands, public lands administered by the U.S. Bureau of Land Management, or Native American tribal lands. Major Native American reservation lands include (refer to **Figure 2-15**):

- Torres-Martinez Desert Cahuilla Indians Reservation, Cahuilla
- Cabazon Band of Mission Indians Reservation, Indio
- Augustine Band of Cahuilla Indians Reservation, Coachella
- Agua Caliente Band of Cahuilla Indians Reservation, Palm Springs
- Twenty-Nine Palms Band of Mission Indians Reservation, Indio and Coachella

- Santa Rosa Tribal Lands, in the Mountains of Palm Desert
- Morongo Tribal Lands, which are located just west of the Coachella Valley IRWM/SWR Region

Though the Morongo Band of Mission Indians Reservation does not lie directly within the Coachella Valley IRWM Regional Boundary (Regional Boundary), the tribe was invited to participate in regional planning efforts. The Santa Rosa Band of Cahuilla Indians' Reservation is partially located within the Regional Boundary, but have decided not to participate in the IRWM Program because they do not obtain their water resources from the Coachella Valley.

The goal of engaging the Coachella Valley's tribal governments is to better understand their critical water resources and stormwater needs. Through targeted outreach conducted since 2009, the CVRWMG sought to learn more about the major water-related concerns facing the tribes such that long-term implementation of the IRWM/SWR Plan is responsive to those needs.

Tribal participants were contacted based on input from currently identified tribal representatives. The six Native American tribes listed above were targeted during outreach for the IRWM Program. Additionally, meetings that included the US BIA and the Indian Health Services were held to get more general information about tribal needs from the perspective of separate federal agencies.

7.6.1 Outreach Activities

Tribal Outreach Meetings

During the preparation of the 2014 IRWM Plan Update, individual meetings were held with representatives from each tribe in the summer and fall of 2012. These meetings were designed to inform the tribes on the current and future status of the Coachella Valley IRWM Program, inform the tribes of the Proposition 84-Round 2 Implementation Grant funding opportunity, and request information and input from tribes on tribal characterizations and water issues for inclusion in the 2014 IRWM Plan. Due to the amount of information regarding tribal nations and the importance of these nations to water management in the Coachella Valley, this IRWM/SWR Plan includes a chapter on *Chapter 5 Tribal Water Resources*.

Future tribal outreach meetings will be based on the interest and availability of the tribal representatives. Tribal outreach meetings will inform the tribes about the IRWM Program and its status, the local IRWM/SWR planning process, and upcoming IRWM and SWGP funding opportunities. They will focus on clarifying the tribe's water resources and stormwater issues and needs and identifying integrated project concepts that address those needs. In addition, tribal outreach meetings will carefully review the different coordination issues needed for tribal nations in the Region.

Notices and Newsletters

CVRWMG staff will work with community leaders to identify appropriate methods for notifying members of the tribes of the current state of the IRWM Program, IRWM/SWR planning process, and timing of project submittals. These methods may include techniques such as notices at community gathering sites, newsletters, or mailings. The focus of these efforts will be to identify the tribes' critical water resources needs and how those are represented in the IRWM/SWR Plan. In addition, one-on-one communication between tribal representatives and the CVRWMG will be used to encourage participation in IRWM/SWR Plan public meetings.

CVRWMG Coordination

The CVRWMG has taken an active role in tribal outreach to-date and has participated in tribal meetings either directly through attendance or indirectly through coordination with the consulting team. Moving forward, if the CVRWMG and Planning Partners determine that a permanent advisory group is appropriate and desired, at least one tribal representative from the CVRWMG should be designated to serve on the advisory group.

Correspondence

The CVRWMG recognizes that Native American tribes are sovereign nations and coordination is on a government-to-government basis. Therefore, it follows that coordinating with tribes is on a government-government basis. Tribal members will have direct connection with a CVRWMG liaison and possibly an advisory group representative. Communication will be conducted mainly via telephone and email; however, office visits may be arranged as feasible. Through one-on-one communication, the CVRWMG will encourage participation by tribal representatives in IRWM/SWR Plan public meetings.

7.7 IRWM/SWR Plan Adoption

This section describes adoption of the IRWM/SWR Plan.

*This section complies with the **Implementation Strategy and Schedule** requirements for the SWRP by describing an implementation strategy, including a timeline for submitting the IRWM/SWR Plan into existing plans, and by confirming that the IRWM/SWR Plan will be submitted to the applicable IRWM group. This section also complies with the **Education, Outreach, Public Participation** requirements by including a schedule for initial public engagement and education related to the IRWM/SWR Plan.*

A public review draft of the 2018 Coachella Valley IRWM/SWR Plan was released on August 20, 2018. A press release for this document, as well as an announcement to the stakeholder mailing list, was made available on this day. In addition, an electronic version of the public review draft IRWM/SWR Plan was made publicly available on the IRWM website (http://www.cvrwmg.org/). The 30-day public comment period for this document extended from August 20, 2018 to September 21, 2018. Comments received during this public comment period, along with how these comments were addressed or incorporated into the final 2018 IRWM/SWR Plan are provided as **Appendix VI-F**.

The CVRWMG published notices of intent to adopt the IRWM/SWR Plan in accordance with Government Code §6066 and CWC §10543. As such, the CVRWMG published two reoccurring notices of intent to adopt the IRWM/SWR Plan in a local newspaper and allowed for a 30-day public comment period prior to public meetings held by CVRWMG member agencies. The CVRWMG will continue to comply with these codes in all future updates of the IRWM/SWR Plan.

The timeline for IRWM/SWR Plan preparation and adoption, including the public engagement and communication involved, can be seen below in **Figure 7-3**. The Planning Partners and members of stakeholder groups have provided information, projects, and comments in an ongoing process leading up to the public draft.

It is anticipated that the CVRWMG agencies will consider approval of the final IRWM/SWR Plan as follows:

- The Coachella Water Authority Board of Directors will adopt the IRWM/SWR Plan at a public meeting on January 9, 2019 at 1515 6th Street, Coachella CA 92236,
- The Coachella Valley Water District Board of Directors will adopt the IRWM/SWR Plan at a public meeting on January 8, 2019 at 85-995 Avenue 52, Coachella CA 92236,
- The Desert Water Agency Board of Directors will adopt the IRWM/SWR Plan at a public meeting on January 15, 2019 at 1200 Gene Autry Trail South, Palm Springs CA 92264,
- The Indio Water Authority Board of Directors will adopt the IRWM/SWR Plan at a public meeting on February 5, 2019 at 100 Civic Center Mall, Indio CA 92201,
- The Mission Springs Water District Board of Directors will adopt the IRWM/SWR Plan at a public meeting on January 15, 2019 at 66575 Second Street, Desert Hot Springs CA 92240, and
- Valley Sanitary District will adopt the IRWM/SWR Plan at a public meeting on January 8, 2019 at 45500 Van Buren Street, Indio CA 92201.

Project proponents listed in future IRWM grant applications for the Coachella Valley will also adopt the IRWM/SWR Plan prior to application submittal.

Figure 7-3: Timeline for 2018 Coachella Valley IRWM/SWR Plan

7.8 Long-Term Implementation of IRWM/SWR Plan

This section describes how the governance structure helps ensure implementation of the IRWM/SWR Plan in the long-term.

This section complies with the ***Organization, Coordination, Collaboration*** *requirements for the SWRP by identifying the required decision that must be made by regulatory agencies for IRWM/SWR Plan implementation, describing the IRWM/SWR implementation strategy, and describing how implementation performance measures will be tracked. This section also complies with the* ***Education, Outreach, Public Participation*** *requirements by highlighting how community participation is provided for in IRWM/SWR Plan implementation and describing mechanisms used engage communities in project design and implementation.*

The CVRWMG is committed to long-term water resources sustainability and IRWM/SWR planning efforts, and to continuously work together with the community to maintain and implement the IRWM/SWR Plan. This commitment is evidenced by the base premise in the MOU (see **Appendix VI-C**): *"the partners anticipate the potential need for future agreements on specific projects or programs and with other affected agencies to further coordinate long term water supply planning."*

Evidence of the regional commitment to long-term sustainable IRWM/SWR planning includes the significant efforts undertaken to date:

- Negotiation and approval of the MOU to establish the CVRWMG and develop the IRWM/SWR Plan,
- Coordination and planning for the IRWM/SWR Plan and other programs (such as the Mission Creek-Garnet Hill Water Management Plan (WMP) collaborative effort),
- Commitment of cooperative funding of IRWM/SWR planning,
- Applied for and was awarded Proposition 84-Round 1 Implementation Grant to implement the priority projects identified in the 2010 IRWM Plan,
- Applied for Proposition 84-Round 2 Implementation Grant to implement the priority projects identified by regional stakeholders,
- Applied for and was awarded Proposition 84 Planning Grant to conduct technical studies to support and develop this 2014 IRWM Plan,
- Applied for and was awarded DAC Outreach Program grant to increase involvement of DACs in the IRWM Program and better address needs of DACs in the 2014 IRWM Plan, 2018 IRWM/SWR Plan, and future IRWM/SWR grant applications,
- Preparation of the 2014 IRWM Plan Update for the Coachella Valley,
- Applied for and was awarded Proposition 84-Round 3 Implementation Grant to implement projects to increase regional drought preparedness, local water supply reliability and to implement water conservation programs,
- Applied for and was awarded Proposition 84-Round 4 Implementation Grant to implement the priority projects identified by regional stakeholders,
- Applied for and was awarded Proposition 1 Planning Grant to update the 2014 IRWM Plan with state requirements and integrate a SWRP within the IRWM Plan,

- Applied for and was awarded Proposition 1 DAC Involvement Grant to prepare planning projects that benefit Coachella Valley DACs, and
- Continuing IRWM Programs that are valuable to the region and sustainable.

Fortified by the relationships established through the IRWM/SWR effort, the CVRWMG is committed to working together on water supply and water quality programs which extend through the 20-year planning horizon. The CVRWMG partners collaborate on various sustainable water supply and treatment programs, including regional surface water treatment or conservation/efficiency programs. The partners have also recognized that conversion of septic systems to sewer or other methods of groundwater treatment is a regional priority that can be implemented in collaborative ways. Finally, all CVRWMG agencies are focused and committed to long term basin management to assure future groundwater supplies to meet Coachella Valley needs.

7.8.1 Updating or Amending the IRWM/SWR Plan

In accordance with the MOU and the Ground Rules, the CVRWMG has identified the following mechanisms for addressing new information that might suggest modifications to the IRWM/SWR Plan (**Appendix VI-C**). The changes would be developed in the same process as the existing IRWM/SWR Plan and include Planning Partner, Issues Groups and stakeholder consensus.

Non-Substantive Changes – Non-substantive changes may be made to the IRWM/SWR Plan to correct errors or make changes which do not modify the initial intent or implementation of the IRWM/SWR Plan upon consensus of the CVRWMG and recommendation of the Planning Partners.

Additional Information Availability by Addendum – Addendums will be developed by the CVRWMG to provide additional information gathered from stakeholders, expanded scientific understanding, or other information that updates or expands the IRWM/SWR Plan without changing intent or implementation of the IRWM/SWR Plan upon consensus of the CVRWMG and recommendation of the Planning Partners.

Informal Updates and Substantive Changes – Within the authority provided by the MOU, informal substantive changes may be made by concurrence of the six CVRWMG agencies (**Appendix VI-C**). Such changes should be vetted and recommended by the Planning Partners.

Formal Updates – The Coachella Valley IRWM Plan will be formally updated every five years, or in accordance with DWR's IRWM planning cycle. The SWR Plan will be updated as needed given that there is no prescribed updating cycle. Formal updates to the IRWM/SWR Plan must be based on a stakeholder-driven, consensus-based process involving the Planning Partners, Issues Groups (as needed), and the general public. Formal updates must include a public review period with changes incorporated in accordance with the judgment of the CVRWMG partners. Formal updates to the Coachella Valley IRWM/SWR Plan must be adopted by the CVRWMG agencies governing bodies at a noticed public meeting.

Formal updates outside of DWR's IRWM/SWR planning cycle can be initiated by stakeholders through formal written requests to the CVRWMG that explain the rationale for making such a request.

Online Project Database

The Coachella Valley IRWM and SWRP project lists are continuously updated on the online project database as projects are completed, new projects are added, or changes are made to projects. Project changes can be made by the project proponents as new funding opportunities arise. The projects included in the

online project database constitute a living project list that will be continuously updated as both the Coachella Valley IRWM Program and IRWM/SWR planning process continue forward.

Table 7-10: Coachella Valley IRWM/SWR Stakeholder List

*This table complies with the **Education, Outreach, Public Participation** requirements for the SWRP by identifying specific audiences including local ratepayers, developers, locally regulated commercial and industrial stakeholders, nonprofit organizations, and the general public.*

Agency	Contacted	Stakeholder List	Planning Partner
CVRWMG			
Coachella Valley Water District		✓	✓
Coachella Water Authority		✓	✓
Desert Water Agency		✓	✓
Indio Water Authority		✓	✓
Mission Springs Water District		✓	✓
Valley Sanitary District		✓	✓
Cities			
City of Cathedral City	✓	✓	✓
City of Coachella	✓	✓	✓
City of Desert Hot Springs	✓	✓	✓
City of Indian Wells	✓		
City of Indio	✓	✓	✓
City of La Quinta	✓		
City of Rancho Mirage	✓		
City of Palm Desert	✓	✓	✓
City of Palm Springs	✓	✓	
County of Riverside			
Coachella Valley Economic Partnership	✓	✓	✓
Riverside County Transportation and Land Management Agency	✓	✓	
Riverside County Department of Health	✓	✓	
Riverside County Regional Park District	✓		
Riverside County Economic Development Agency	✓	✓	
Riverside County Flood Control and Water Conservation District	✓	✓	✓
Community Councils			
Bermuda Dunes Community Council	✓		
Desert Edge Community Council	✓	✓	
Desert Palms Community Council	✓		
Indio Hills Community Council	✓		
Mecca Community Council	✓		

Agency	Contacted	Stakeholder List	Planning Partner
North Shore Community Council	✓		
Oasis Community Council	✓		
Sky Valley Community Council	✓		
Thermal Community Council	✓		
Thousand Palms Community Council	✓		
Vista Santa Rosa Community Council	✓		
Elected Officials			
Senator Jeff Stone	✓	✓	✓
Assembly Member Eduardo Garcia (56th Dist.)	✓		
Assembly Member Chad Mayes (42nd Dist.)	✓	✓	
Supervisor Manuel Perez (4th Dist.)			
Resource Agencies			
California Department of Fish and Wildlife	✓		
California Department of Water Resources	✓	✓	✓
Colorado River Regional Water Quality Control Board	✓	✓	✓
Indian Health Services	✓		
U.S. Bureau of Indian Affairs	✓	✓	
U.S. Bureau of Land Management	✓		
U.S. Department of Agriculture	✓	✓	
Special Interests			
Big Morongo Preserve	✓		
Bighorn Research Institute	✓		
Building Healthy Communities		✓	
Building Industry Association	✓		
Center for Natural Land Management (fringed toed lizard preserve)	✓		
Clean Water Action	✓	✓	
Coachella Valley Archaeological Society	✓		
Coachella Valley Association of Governments	✓	✓	
Coachella Valley Conservation Commission	✓		
Coachella Valley Economic Partnership		✓	✓
Coachella Valley Housing Coalition		✓	
Coachella Valley Mosquito and Vector Control	✓	✓	
Coachella Valley Mountains Conservancy	✓		
Coachella Valley Parks and Recreation District	✓		
Coachella Valley Resource Conservation District	✓		
Council of Mexican Federations in North America	✓		
Deep Canyon Desert Research	✓		
Desert Alliance for Community Empowerment	✓	✓	

Agency	Contacted	Stakeholder List	Planning Partner
Desert Empire Homes		✓	✓
Desert Recreation District	✓		
Friends of the Desert Mountains	✓	✓	
Groundwater Guardians	✓		
Hi-Lo Golf Course Superintendents Association	✓	✓	
Inland Congregations United for Change	✓		
League of Women Voters	✓		
Sierra Club	✓		
Wildlands Conservancy	✓		
Tribes			
Agua Caliente Band of Cahuilla Indians	✓	✓	✓
Augustine Band of Mission Indians	✓	✓	✓
Cabazon Band of Mission Indians	✓	✓	✓
Morongo Band of Mission Indians	✓	✓	
Torres-Martinez Desert Cahuilla Indians	✓	✓	✓
Twenty-Nine Palms Band of Mission Indians	✓	✓	✓
Inter-tribal Council	✓		
School Districts			
Coachella Valley Unified School District	✓		
Desert Sands Unified School District	✓		
Palm Springs Unified School District	✓		
Academia			
California State University San Bernardino	✓	✓	
Loma Linda University	✓	✓	
University of California Irvine	✓	✓	
University of California Riverside	✓		
Other Water/Wastewater Companies			
Borrego Water District	✓	✓	
Imperial Irrigation District	✓	✓	✓
Mojave Water Agency	✓	✓	✓
Myoma Dunes Mutual Water Company	✓		
Salton Community Services District	✓	✓	
San Gorgonio Pass Water Agency	✓	✓	
Private Pumpers and Large Irrigators			
Agricultural pumpers	✓		
Home Owners' Associations	✓		
Golf courses	✓		
Nurseries	✓		

Agency	Contacted	Stakeholder List	Planning Partner
Disadvantaged Community Organizations			
California Rural Legal Assistance, Inc.	✓	✓	
Clean Water Action	✓	✓	
Community Water Center	✓	✓	
Desert Alliance for Community Empowerment	✓	✓	
El Sol Neighborhood Educational Center		✓	
Environmental Justice Coalition for Water	✓	✓	
Leadership Counsel for Justice and Accountability	✓	✓	✓
Poder Popular	✓		
Pueblo Unido CDC	✓	✓	✓
Rural Community Assistance Corporation	✓	✓	✓

Note: Blue, italicized text indicates stormwater stakeholders.

8 Resource Management Strategies

Integrated Regional Water Management (IRWM) Standards: *This chapter addresses the* ***Integration Standard*** *by describing how the CVRWMG intentionally creates a system where integration can occur, as well as the* ***Resource Management Strategy Standard*** *by defining the diversification of water management approaches in the Region.*

8.1 IRWM/Stormwater Resource Integration Approach

This section outlines the integration principles and methods used during development of the IRWM/Stormwater Resource (SWR) Plan.

Integration is paramount in making certain that the planning process for this region results in projects that have the greatest benefit to the Coachella Valley. It is critical that the process include the integration of four key areas: stakeholders/institutions, resources, projects, and strategies. The following sections describe the types of integration that are occurring in the planning of projects for this region.

8.1.1 Stakeholder/Institutional Integration

Any successful regional planning effort requires the participation and input from many diverse groups of stakeholders as it builds shared ownership into the planning process. It is critical that IRWM plans contain governance structures and processes that enable diverse groups of stakeholders to participate in all levels of a planning effort. Regional planning efforts rely on collaborative efforts and projects must develop in a manner that balances interests of stakeholders regardless of their ability to contribute financially. Structures and processes to find this balance have been included in all stakeholder involvement portions of this IRWM/SWR Plan and include public workshops to discuss IRWM/SWR planning milestones, direct contact with known stakeholders, discussion of projects and integration opportunities with stakeholders, and stakeholder buy in on key decisions. The Planning Partners play a critical role in the planning process as they advise the Coachella Valley Regional Water Management Group (CVRWMG), reviewing and contributing to the identification of water management issues, the development of regional goals and objectives, the project solicitation, review, and selection process, and the IRWM/SWR Plan implementation framework.

Collaboration between stakeholders in the planning process has the added benefit of building trust over time, allowing for greater collaboration at the project level. Greater collaboration on projects results in a project with broader buy-in and increasing project viability. Additionally, having many different "voices" involved will ensure that more of the Coachella Valley's water management needs are heard and addressed. For more information regarding collaboration and integration, please refer to *Chapter 7 Stakeholder Involvement,*

Section 7.2 Structure and Organization, which describes the various structures of the Coachella Valley IRWM/SWR planning process that allow for the integration process to occur.

8.1.2 Resource Integration

Several agencies working together have significantly more resources than one does alone, hence the integration of resources can enhance the outcome of any project. Resource integration – which may include sharing data, technical expertise, or infrastructure – is critical to the success of water management projects for this region. Using the stakeholder outreach methods described above, the region has encouraged all project teams to collaborate between experts, staff, and infrastructure from multiple agencies, resulting in regional water management projects that utilize the best possible combination of resources amongst the agencies and thus yield the best possible results. Entities having differing strengths collaborating on projects have a higher probability of developing solutions that most creatively address the issues and concerns of the region.

8.1.3 Project Integration

The IRWM/SWR planning process brings together various groups to discuss and better understand the shared needs and opportunities of the region. Local water and wastewater agencies, stormwater management and flood control agencies, planning entities, and open space, recreation, and habitat preservation interests all collaborate to discuss integrated water management and stormwater resources objectives and compile a list of implementation projects. During this process, inter-agency collaboration and input allow for the review of local project objectives, their comparison to regional needs, and subsequently the expansion or revision of projects to enhance benefits and effectiveness through identification of regional project partnership opportunities.

Through stakeholder discussions of projects, entities can join together and collaborate on a number of projects rather than duplicate efforts. Additionally, related projects can be tied together to maximize the potential benefits and minimize the potential impacts of these projects for the Region. Coordinating projects is beneficial because it streamlines resources and augments benefits. Stormwater projects are collectively discussed on a watershed scale to address watershed objectives for the Stormwater Resource Plan (SWRP) components. Additionally, project collaboration and integration will result in cost savings as it minimizes the duplication of efforts and resources that would occur had those projects been implemented separately.

Projects can also be integrated geographically, such as upstream and downstream within a watershed or by combining multiple projects throughout a subregion. Geographic integration of projects can maximize benefits to the region, save duplicative administrative costs, and prevent accidental conflicts that arise when multiple single-purpose management strategies are implemented in proximity. For example, project proponents seeking to improve flood protection in the mid-watershed may inadvertently increase flood velocities and subsequently result in erosion or scour of habitat restoration areas downstream. Development of an integrated watershed project would recognize these potential conflicts and plan for mitigation of downstream impacts.

8.1.4 Strategy Integration

The resource management strategies considered as part of this IRWM/SWR Plan (see **Table 8-1** below) may be combined to effectively address the regional goals established in *Chapter 6 Objectives* (see **Table**

8-2 below). By implementing resource management strategies that complement one another, the participating water resources management entities can help ensure that each goal is fully addressed. While single resource management strategies may address aspects of a regional goal, combining multiple resource management strategies will establish a comprehensive, multi-faceted solution that will stand up to circumstances that might otherwise compromise the integrity of a single-pronged solution. By integrating resource management strategies to achieve regional goals, multiple economic, environmental, and long-term water security benefits for the region can be achieved.

8.2 Resource Management Strategies

This section *describes all RMS covered in the California Water Plan 2013 Update (DWR 2013).*

A comprehensive range of resource management strategies (RMS) were considered to achieve the goals and objectives identified for the Coachella Valley IRWM Region (Region). This section:

- Identifies the RMS considered within this IRWM/SWR Plan,
- Documents the selection process of the RMS, and
- Describes each RMS and any relevant efforts within the Region (if any).

This section describes all RMS covered in the *California Water Plan 2013 Update* (DWR 2013), assesses the thirteen IRWM/SWR Plan objectives outlined in *Chapter 6 Objectives,* and determines how the resource management strategies from the *California Water Plan 2013 Update* (DWR 2013) can work together to achieve the IRWM/SWR Plan objectives.

8.2.1 Resource Management Strategies

The Coachella Valley IRWM/SWR Plan considered each RMS listed in the *California Water Plan Update 2013* as stated by *Proposition 1 2016 IRWM Guidelines* (DWR 2016). The *California Water Plan Update 2013* identified eight categories of RMS applicable to water management in California. DWR is currently updating the *California Water Plan* to a new 2018 version; it is anticipated that the *California Water Plan Update 2018* will be finalized in December 2018.

Table 8-1 presents the eight categories of RMS considered for the Coachella Valley IRWM/SWR Plan. These strategies include all the resource management approaches identified by the *California Water Plan Update 2013*. A variety of approaches to water management must be considered to fully address the regional goals and objectives of the Region. Though all the RMS identified by the *California Water Plan Update 2013* were considered, not all are appropriate for meeting Coachella Valley's IRWM/SWR Plan goals and objectives. RMS not considered appropriate for the Coachella Valley include: crop idling for water transfers, dewvaporation or atmospheric pressure desalination, fog collection, irrigated land retirement, rainfed agriculture, and waterbag transport/storage technology.

Table 8-1: All Resource Management Strategies Considered

Reduce Water Demand	Improve Flood Management
Agricultural Water Use Efficiency Urban Water Use Efficiency	Flood Risk Management (includes Land Use Planning and Management)
Improve Operational Efficiency and Transfers	**Practice Resources Stewardship**
Conveyance- Delta Conveyance- Regional/Local System Reoperation Water Transfers	Agricultural Lands Stewardship Ecosystem Restoration Forest Management Land Use Planning & Management Recharge Area Protection Sediment Management Watershed Management
Increase Water Supply	
Conjunctive Management and Groundwater Storage Desalination Precipitation Enhancement Recycled Municipal Water Surface Storage- CALFED Surface Storage- Regional/Local	**Other Strategies[1]** Crop Idling for Water Transfers Dewvaporation or Atmospheric Pressure Desalination Fog Collection Irrigated Land Retirement Rainfed Agriculture Waterbag Transport/Storage Technology
Improve Water Quality	
Drinking Water Treatment and Distribution Groundwater Remediation/Aquifer Remediation Matching Quality to Use Pollution Prevention Salt and Salinity Management Urban Runoff Management	**People & Water** Economic Incentives (Loans, Grants, & Water Pricing) Outreach and Engagement[2] Water and Culture Water-Dependent Recreation

1. RMS not appropriate for the Region
2. RMS identified by Coachella Valley Stakeholders in the 2014 IRWM Plan Update prior to officially becoming an RMS required by the California Water Plan.

Source: (DWR 2013)

8.2.2 Objectives Assessment

Table 8-2 presents the RMS and how they contribute to meeting each of the IRWM/SWR Plan regional objectives. The table illustrates which strategies can be integrated to achieve a specific objective. Most objectives have multiple strategies that can be integrated to form a successful project to fulfill one or multiple regional goals. Descriptions of each RMS, including those not appropriate for the Coachella Valley IRWM/SWR Plan, can be found in *Section 8.4 Overview of Resource Management Strategies*.

Table 8-2: Resource Management Strategies that Achieve IRWM/SWR Plan Objectives

IRWM/SWR Plan Objectives	Resource Management Strategies																													
	Agricultural Lands Stewardship	Agricultural Water Use Efficiency	Conjunctive Mgmt. and Groundwater Storage	Conveyance –Delta	Conveyance—Regional/Local	Desalination	Drinking Water Treatment & Distribution	Economic Incentives	Ecosystem Restoration	Flood Risk Management	Forest Management	Groundwater /Aquifer Remediation	Land Use Planning and Management	Matching Water Quality to Use	Outreach and Engagement	Pollution Prevention	Precipitation Enhancement	Recharge Area Protection	Recycled Municipal Water	Salt and Salinity Management	Surface Storage—CALFED	Surface Storage—Regional/Local	System Reoperation	Urban Runoff Management	Urban Water Use Efficiency	Water and Culture	Water Transfers	Water-Dependent Recreation	Watershed Management
A. Provide reliable water supply for residential and commercial, agricultural community and tourism needs.		●	●	●	●	●	●	●				●		●				●	●	●	●	●	●		●		●		
B. Manage groundwater levels to manage and reduce overdraft, manage perched water and minimize subsidence.	○	●	●			○	○	○				●	○	●				●	●	●			○		●	○	●		●
C. Secure reliable imported water supply, including restoring/improving reliability of State Water Project supply and securing other imported water supplies.			○	●	●	○	○	○				○						○		●	●	●	○				○		
D. Maximize local supply opportunities, including water conservation, water recycling and source substitution, and capture of infiltration of runoff.	○	●	●			●		●		○			○	●		●		○	●	●		●	○	●	●	○	○		○
E. Protect groundwater quality and improve, where feasible.	●	●	●			○		○	○	○		●	●	●		●		●	○	●			○	●	●	○	○		●
F. Preserve and improve surface water quality by maintaining integrity of agricultural drainage systems, protecting the quality of natural runoff used for potable supply, and reducing pollution in stormwater runoff.	●	●				●		●	○	○			●	●		●		○		○				●	●				●
G. Preserve water-related local environment and restore, where feasible.	●								●	○			●			○				○				○		○			●
H. Manage flood risks, including current acute needs and needs for future development.	○				○		○			●			○			○		○						●					○
I. Optimize conjunctive use of available water resources.				•	○	○		○			○			○					○				○	○			○			
J. Maximize stakeholder involvement and stewardship in water resource management.	○	○	○	○	○	○	○	●	○	○	○	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
K. Address water-related needs of local Native American culture.	○	○	○	○	○	○	●	●	○	●	○	●	●	○	○	○	○	○	○	●	○	○	○	●	○	●	○	○	○	○
L. Address water and sanitation needs of disadvantaged communities, including those in remote areas.	○	○	○	○	○	○	●	●	○	●	○	●	●	○	○	○	○	○	○	●	○	○	○	●	○	●	○	○	○	○
M. Maintain affordability of water.	○	○	○	○	○	○	●	●	○	○	○	●	●	○	○	○	○	○	○	●	○	○	○	○	○	○	○	○	○	○

● Resource management strategy primarily and directly supports attainment of the IRWM/SWR Plan objective

○ Resource management strategy indirectly helps to achieve the IRWM/SWR Plan objective

Page intentionally left blank.

8.3 Documenting the Process

This section considers and documents which RMS will help achieve the IRWM/SWR Plan objectives.

The identification of which RMS are included in this IRWM/SWR Plan is based on a review of all 31 resource management strategies identified by the *California Water Plan Update 2013* and the *Proposition 1 2016 IRWM Guidelines*. The CVRWMG, Planning Partners, and stakeholders have determined that 29 RMS were selected to be included in the Coachella Valley IRWM/SWR Plan as they are either currently being utilized or will be utilized in the management of water resources in the Region. Information provided in this chapter outlines the RMS that are currently being implemented in the Region; as explained in *Chapter 9 Project Evaluation and Prioritization*, projects that are implemented through the IRWM/SWR Plan are evaluated for their ability to employ the RMS identified as appropriate for the Region.

The process of identifying RMS that address the regional goals and objectives identified for the Coachella Valley IRWM/SWR Plan consisted of an evaluation of all strategies by the CVRWMG, Planning Partners, and stakeholders. The evaluation consisted of reviewing and discussing all 29 RMS required by the *Proposition 1 2016 IRWM Guidelines* and how applicable each strategy is in meeting the Coachella Valley IRWM/SWR Plan objectives. *Section 8.4 Overview of Resource Management Strategies*, below, provides the reasoning for incorporation of each RMS into the Coachella Valley IRWM/SWR Plan.

8.4 Overview of Resource Management Strategies

This section presents the RMS considered for the IRWM/SWR Plan.

The RMS in **Table 8-2** encompasses the Coachella Valley's water management approach for meeting the IRWM/SWR Plan's regional objectives. This section describes these strategies in further detail and provides examples (if any) of current efforts in the Region that apply to each strategy.

The RMS described within the following sections are consistent with the Region Description (herein *Chapter 2 Region Description*), Plan Objectives (herein *Chapter 6 Objectives*), and Governance (herein *Chapter 7 Stakeholder Involvement*) requirements set forth in the IRWM Grant Program Guidelines (DWR 2016). In addition, each section below acknowledges where the RMS are currently being implemented in accordance with the Region's identified issues and needs (*Chapter 3 Issues and Needs*).

8.4.1 Reduce Water Demand

Agricultural Water Use Efficiency

Agricultural water use efficiency can achieve reductions in the amount of water used for agricultural irrigation. This strategy could increase the Region's net water savings, improve water quality, provide environmental benefits, improve flow and timing, and increase energy efficiency.

CVRCD Mobile Lab Providing Irrigation Strategies

Several strategies recommended by the *California Water Plan Update 2013* to achieve agricultural water savings and benefits include:

- Improving irrigation system technology and management of water, both on-farm and at the irrigation district level to minimize water losses,
- Adjusting irrigation schedules to decrease the amount of water applied,
- Installing remote monitoring to allow districts to measure flow, water depth and improve water management and controls, and
- Developing community educational conservation activities to foster water use efficiency.

Coachella Valley Efforts

A few select examples of past and current agriculture water use efficiency strategies employed by the Region are listed below.

- **Extra-ordinary Conservation Measures**. This program was developed in response the U.S. Bureau of Reclamation (USBR) Inadvertent Overrun and Payback Policy (IOPP). The conservation program, which consisted of Coachella Valley Water District (CVWD) funded and voluntary grower participation in various agricultural conservation measures, resulted in the repayment of 73,200 acre-feet (AF) of water that CVWD owed for diversion of Colorado River water in excess of its allocation. The conservation measures include scientific irrigation scheduling, salinity management, salinity feed mapping, conversion to micro-irrigation, distribution uniformity evaluation, grower training and meetings, and engineering evaluations.
- **Agricultural Program for the *2010 Coachella Valley Water Management Plan Update***. This program uses a building block approach in which conservation measures can be added incrementally until the desired level of conservation is achieved. The basic building blocks of the program are grower education, training and system audits. Irrigation upgrades/retrofits, pricing approaches to encourage conservation and, as a last resort, regulatory programs can be layered on top of the basic measures, if needed.

- **Coachella Valley Resource Conservation District (CVRCD) Mobile Lab**. Since 1985, the mobile lab program, created by the CVRCD/Natural Resource Conservation Service (NRCS), utilizes technologies to conduct on-site system evaluations that measure agricultural water use efficiency. Based on these on-site evaluations, the mobile lab team suggests modifications in the irrigation system to increase irrigation efficiency, reduce water loss, increase crop health, and decrease water, power, and fertilizer costs.
- **Daily Local Agricultural Weather Forecast**. Local weather forecasting services are provided to growers, including evapotranspiration estimates, rain, wind and temperature to better manage irrigation water application.

Re-landscaping in City of La Quinta with water efficient plants

- **Prohibition on Tail Water**. Local district regulations prohibit tail water runoff.
- **Flood to Drip Rebate Program**. Agricultural water users are paid to convert their flood irrigated lands to drip irrigated lands. This USBR-funded program will result in a savings of up to 3 AF of water per acre of land converted.

Urban Water Use Efficiency

Due to Coachella Valley's growing population and consequently expanding urban development, it is vital that urban water use efficiency strategies are adopted to reduce pressure on the region's groundwater supply. Urban water use efficiency strategies can reduce water demand through technological and behavioral improvements by decreasing indoor and outdoor residential, commercial, institutional, and industrial water use.

Several approaches recommended by the *California Water Plan Update 2013* to increase urban water use efficiency include:

- Implementing programs such as Best Management Practices (BMPs),
- Reviewing the 2015 Urban Water Management Plans (UWMPs) to ensure 20% water use reductions are achieved by 2020,
- Installing water efficient landscapes,
- Encouraging gray water and rain water capture to increase water conservation and improve water quality,
- Increasing public outreach and encouraging community involvement, and

- Funding incentive programs for small districts and economically Disadvantaged Communities (DAC)s.

Coachella Valley Efforts

At present, various aggressive measures to increase urban water use efficiency in the Region are underway. A select few examples of these strategies are listed below.

CVWD table tent encouraging water conservation

- **Coachella Valley-wide Model Landscape Ordinance.** Most Coachella Valley cities, Riverside County, and water districts have adopted a Valley-wide Model Landscape Ordinance which sets a limit on the amount of water used for landscaping based on evapotranspiration and irrigation efficiency appropriate for desert climates.
- **Tiered Conservation Water Rates.** Most of the Coachella Valley water users are on a tiered water rate, whereby use above that needed for basic living and desert appropriate landscape irrigation is billed in increasing multiples of the base water rate.
- **Xeriscape Demonstration Gardens**. To demonstrate low-water-use plants, CVWD maintains a xeriscape demonstration garden at its Coachella headquarters and at the Palm Desert facility. Mission Springs Water District (MSWD) also has an 8,000 square foot water efficient demonstration garden adjacent to its administration building, featuring a variety of drought-resistant trees, shrubs and groundcover native to the local area. Brochures are distributed to provide explanation of each plant, specific environmental requirements, and to enable interested members of the public to take a self-guided tour of the garden. Desert Water Agency's (DWA's) Operations Center has demonstration gardens with signage to identify common and botanical names of plants. DWA has also sponsored and participated in the creation of several other demonstration gardens within its service area.
- **Golf Course Conservation**. The Coachella Valley is home to more than 100 golf courses, which consume approximately one-sixth of all water in the Coachella Valley, including imported and local sources. CVWD has adopted a landscape and irrigation ordinance that established maximum allowable turf areas and sets water budgets for all new golf courses. CVWD has implemented the Golf Course Turf Removal Program to further reduce water demands by the Coachella Valley's golf courses. CVWD was awarded a $1 million grant from the USBR in November 2016 for this program. Through this program, CVWD has assisted in the removal of 24 acres of turf from golf courses. This program is still being utilized and will continue to reduce water demands by golf courses.
- **Water Conservation Programs**. Coachella Water Authority (CWA), DWA, Indio Water Authority (IWA), MSWD, and CVWD have conservation programs that encourage and increase water use efficiency. Each agency offers outdoor and indoor conservation rebate programs that include rebates for replacement of turf grass with desert-friendly landscaping, irrigation controller

replacement/installation, purchase of water efficient appliances and fixtures such as washing machines, low-flow toilets, and faucet and shower fixtures. These water agencies' websites provide residents with resources for improving indoor and outdoor water efficiency, and educational activities and information, including literature for children.

- **Regional Water Conservation Outreach**. The five CVRWMG water suppliers and the Myoma Dunes Mutual Water Company (MWC) are part of a regional water conservation collaborative, the CV Water Counts. This program, which was initially funded partially through a Proposition 84-Round 1 Implementation Grant, aimed to assist each agency with implementing their 20% by 2020 water use reduction goals established by the Water Conservation Act of 2009 by taking a regional approach to promoting water education and outreach, and water conservation programs. The program gives residents and businesses information, connects them with their agency for rebates and hosts educational tours and forums. The group hosts a water awareness program called Water Counts Academy in conjunction with the University of Riverside – Palm Desert. Due to this program and other water conservation efforts, all the CVRWMG water agencies have met and exceeded their 2020 water conservation goals as of 2015. Further information about this collaboration can be found at www.cvwatercounts.com.
- **Regional Turf Reduction**. The five CVRWMG water agencies developed a program to replace turf grass with water-wise landscaping. Many turf reduction projects were funded, in part, through two Proposition 84 Implementation Grants under Rounds 3 and 4 to reduce potable water demands. Using Round 3 funds, the five CVRWMG water agencies have since removed over 8 million square feet of turf, saving 1,590 acre-feet of water per year, which exceeds the 815 acre-feet target.
- **DAC Onsite Plumbing Retrofit Program**. The CVRWMG, in partnership with Pueblo Unido Community Development Corporation (PUCDC) and Leadership Counsel for Justice and Accountability (Leadership Counsel), are working to provide outreach, technical support, and rebates to DACs within the Coachella Valley to retrofit plumbing systems. This program helps to reduce water waste and increase water use efficiency in DACs.
- **Leak Detection Program**. CVWD employs a crew to look for non-surfacing leaks. Since the program started in 2013, approximately 1,406 miles of water main have been surveyed, and 1,102 leaks have been detected and remedied, resulting in a water savings of 137,424,174 gallons.

8.4.2 Improve Operational Efficiency and Transfers

Conveyance- Delta

Sacramento-San Joaquin Delta (Delta) water is of high demand and critical to sustaining the State's economy. The Delta conveyance system supplies water to the San Francisco Bay Area, Central Valley, and Southern California. Careful management of Delta water is essential for meeting water quality standards and water supply needs throughout the state. Activities in the Region that affect or relate to water demands from the Delta conveyance system will require thoughtful consideration of the Delta ecosystem and how it will be impacted. Consideration of Delta restoration efforts and the preservation of native habitat and other native species are essential when selecting Delta conveyance projects/strategies. Several benefits associated with Delta conveyance strategies include: maintaining or increasing water supply reliability, protecting water quality for aquatic and riparian, and maintaining in-stream flows.

Several Delta conveyance strategies identified by the *California Water Plan Update 2013* include:

- Establishing performance metrics that record quantity of water deliveries for agricultural and urban users,
- Utilizing Delta Vision Task Force and Bay-Delta Conservation Plan recommendations to increase operational flexibility and conveyance reliability to benefit water supply and aquatic ecosystems, and
- Developing strategies that maintain channel capacity in the Delta.

Coachella Valley Efforts

The long-term reliability of the Region's supplies that are delivered based on State Water Project (SWP) allocations and associated conveyance systems is critical to meeting water demands in the Coachella Valley.

- **SWP Extension Project Development Plan**. CVWD and DWA along with other partners have evaluated the feasibility of constructing an aqueduct to connect the Coachella Valley to the SWP California Aqueduct. The SWP extension would deliver SWP water to the Whitewater and Mission Creek Groundwater Replenishment Facilities for recharge in the Western Coachella Valley.
- Currently, the SWP allocations are delivered as water from the Colorado River Aqueduct through an exchange agreement with the Metropolitan Water District of Southern California (MWD).

Conveyance- Regional/Local

The Region relies on the Coachella Canal (a branch of the All American Canal) and the Colorado River Aqueduct for replenishing groundwater supplies, as well as numerous local conveyance infrastructures (water supply and recycled water pipelines) to deliver water. Improving operational efficiency and transfers will require improvements in water supply reliability and conveyance infrastructure. Several benefits of improving regional/local conveyance infrastructure include: maintaining/increasing water supply reliability, protecting water quality, augmenting current water supplies, and providing water system operational flexibility.

Several strategies identified by the *California Water Plan Update 2013* for improving regional/local conveyance of water supplies include:

- Improving aging infrastructure, increasing existing capacities, and/or construction of new conveyance facilities,
- Replacing or improving canal structures to improve an irrigation district's ability to manage and control water in the district and reducing spillage, and
- Constructing alternative water conveyance pipelines to improve water supply reliability.

Coachella Valley Efforts

Examples of past and current regional/local conveyance strategies employed by the Region are listed below.

- **Coachella Canal Lining Project**. This project constructed a new 34.8-mile section of concrete waterway to replace earthen sections of the Coachella Canal to increase water conservation and preserve water supplies.
- **Expansion of the Canal Water Distribution System**. CVWD is currently working with two farming groups (Gold Coast Growers and Ocean Mist, et al.) to extend the Canal water delivery system to serve agricultural operations that are not currently served with Canal water. The use of Canal water will offset groundwater pumping.

Coachella Canal lining project

- **Highway 86 Pipeline Project**. This project constructed a 30-inch diameter pipeline to bring drinking water to the Oasis and Valerie Jean communities. The goal of this new pipeline is to bring reliable, high-quality drinking water and improve water service to the Region. CVWD is currently working on an expansion of this project; the Highway 86 Water Transmission Main and Pump Station Project, Phase 2. This project will extend the transmission main from the Cove Community water system to Avenue 74 to replace the existing Improvement District No. 11 (ID 11) system. The ID 11 system has reliability and water quality issues. The Cove Community system is the most viable option to provide a reliable water supply to customers currently served by the ID 11 system. This project is anticipated to be complete in early 2019.
- **Mid-Valley Pipeline Project.** CVWD recently completed the first phase of this project which entails the installation of a $75 million non-potable distribution system to expand its recycled water/Colorado River water system. Currently the distribution system serves 12 golf courses. When fully implemented, this project will replace the use of groundwater for irrigation at approximately 50 golf courses. It is estimated this project will reduce groundwater pumping by 50,000 AFY. A potential, additional use for the Mid-Valley Pipeline is conveyance of Canal water to urban water treatment facilities, as this use was not evaluated during the development of the original project concept and the feasibility of this option would be evaluated in a future Mid-Valley Pipeline Master Plan.
- **DWA Transmission Main CIP.** The DWA General Plan suggested that a Belardo Road Pipeline be installed in 2008; however due to budget restraints, the project was postponed. There is a need to install infrastructure to increase the efficiency of the distributions system. This installation of pipeline will connect two sections of 24" pipeline allowing DWA to move water from north to south as intended in the general plan. Currently the water must flow through smaller pipelines, increasing head loss and reducing flow capacity.

System Reoperation

System reoperation strategies change existing operation and management procedures for existing reservoirs and conveyance facilities to increase water related benefits from these facilities. Changes in water demands and changing climate would require consideration of reoperation of existing facilities to increase project yield or address climate change impacts. System reoperation strategies will require making changes to how projects operate to best meet the changing needs of the Region. Some of the potential benefits of system reoperation strategies include: increasing water supply reliability, additional flexibility to respond to extreme hydrologic events, and improving the efficiency of existing water uses.

Several system reoperation strategies identified by the *California Water Plan Update 2013* include:

- Establishing a baseline hydrology and enhanced description of present water management system components,
- Considering possible climate change effects in reoperation projects, and
- Collaborating between federal, state, and local agencies on system reoperation studies.

Coachella Valley Efforts

Examples of system reoperation strategies employed by the Region are listed below.

- **Water-Ordering Procedures**. The CVWD's Colorado River irrigation distribution system restructured its irrigation water-ordering procedures allowing water to be turned on and off at any time to increase efficiency and operational flexibility for irrigators in the Coachella Valley. Previously, the CVWD procedures required orders to be placed in advance and turn-on and turn-offs allowed only at certain times of the day.
- **Lake Cahuilla Operations**. CVWD operates Lake Cahuilla to regulate storage for the Coachella Canal. The lake helps balance daily water orders by supplying or storing the difference in amounts of water released by USBR several days before arriving in the Coachella Valley.
- **Mid-Valley Canal Reservoir.** CVWD is in the planning stages of constructing a reservoir on the mid-Canal to allow for water delivery flexibility, especially during times of rain and frost. It would provide a place to store water that was ordered four days in advance, but not needed due to rain events, or provide flexibility to have water immediately available during times of frost.

Water Transfers

Water Transfers are temporary or long-term change in the point of diversion, place of use, or purpose of use due to transfer or exchange of water or water rights (DWR 2013) in response to water scarcity. Benefits to establishing water transfers include improving economic stability and environmental conditions for receiving areas. Compensation for water transfers can fund beneficial projects/activities for the Region, reduce water rates, and/or improve facilities.

Several water transfer strategies identified by the *California Water Plan Update 2013* include:

- Developing and implementing groundwater management plans, monitoring programs,
- Allowing community participant for identifying and responding to conflicts caused by transfer,

- Refining current methods on identifying and quantifying water savings for transfers using crop idling, crop shifting, and water use efficiency measures, and
- Improving coordination and cooperation among the local, state, and federal agencies to facilitate sustainable transfers.

Coachella Valley Efforts

The Coachella Valley has employed various water transfer strategies including:

- **MWD SWP Exchange Agreement**. CVWD and DWA have an agreement with MWD to trade their SWP Table A allotments for an exact amount of MWD's Colorado River water. The Coachella Valley taps into the Colorado River Aqueduct (CRA) where it crosses the Whitewater River and is then diverted to the Whitewater River Groundwater Replenishment Facility (GRF) to replenish groundwater. The CRA also crosses the Whitewater River near Desert Hot Springs adjacent to Mission Creek where it is diverted to the Mission Creek GRF to replenish groundwater.
- **Berrenda Mesa Water Transfer**. This strategy involved the transfer of 16,000 AFY of unused SWP from the Berrenda Mesa Water District (BMWD). This water transfer allows the region to acquire a total of 16,000 AFY which would go through the existing exchange agreement with the MWD for an equal amount of Colorado River Water released to the Coachella Valley.
- **Tulare Lake Basin Water Storage District Transfer**. CVWD and DWA have secured additional SWP Table A allotment water from Tulare Lake Basin Water Storage District (Tulare Lake Basin) in Kings County. In 2004, CVWD completed a purchase of 9,900 AFY of Tulare Lake Basin's SWP allocation, and in 2007, CVWD and DWA purchased another 16,000 AFY of SWP Table A. The latter transfer became effective in January 2010 and increases CVWD's and DWA's SWP allocations by 5,250 AFY and 1,750 AFY, respectively.
- **Kern County Water Purchase.** DWA partnered with CPV Sentinel LLC to purchase 8,350 AFY of water to ensure adequate water supply for a proposed power plant. CPV Sentinel LLC is in the process of permitting and building a power generating facility south of the City of Desert Hot Springs and north of the City of Palm Springs. To avoid any potential impacts to existing water supplies, CPV Sentinel LLC has teamed up with DWA to secure additional imported water supplies to meet the replenishment needs of the power generation project. DWA facilitated and CPV Sentinel LLC funded the purchase, which is the first of several planned to ensure water supplies for the proposed facility. Water was transferred from North Kern County Water Storage District via the California Aqueduct to MWD. DWA exchanged this water with MWD for Colorado River water with deliveries to DWA's Mission Creek GRF.
- **California WaterFix.** CVWD and DWA have voted to a non-binding agreement to participate in the California WaterFix, a project being implemented by the State to upgrade California's aging SWP water delivery system to provide a reliable, and efficient water system.
- **Sites Project Authority Phase I Reservoir.** The CVWD and DWA have partnered with the Sites Project Authority, as well as other water agencies throughout the state, on the Sites Reservoir Project. This project will provide up to 33,000 AFY of water to Coachella Valley – 26,500 AFY to CVWD and 6,500 to DWA. The Sites Project will be located on the west side of the Sacramento

Valley, in Colusa County, which is an area that is considered optimal for storing water. Studied for more than 30 years and widely supported both in the Sacramento Valley Region and statewide, this reservoir will provide high-quality water to enhance the environment and meet water needs throughout the state. The Sites Project will offer additional flexibility by increasing Sacramento Valley water storage capacity by 15%. Design of the Sites Project is ongoing and is planned to be complete by 2022. In terms of permits, the Final EIR/S is currently being developed, with the entire permitting process scheduled to be complete by 2022. Construction of the reservoir is planned from 2022 to 2029.

8.4.3 Increase Water Supply

*This section complies with the **Identification and Prioritization of Projects** requirements for the SWRP by identifying opportunities to augment local water supply through groundwater recharge or storage for benefit use of runoff.*

Conjunctive Management and Groundwater Storage

The reliability of the Coachella Valley's water supplies can be improved through conjunctive use of both surface and groundwater supplies. Conjunctive Management and Groundwater Storage (including stormwater retention basins) refers to the coordinated and planned use and management of surface water, groundwater, and stormwater resources to maximize the availability and reliability of water supplies in a region to meet various management objectives. The conjunctive management and groundwater storage strategy seeks to increase water supply reliability and groundwater sustainability. Several benefits of utilizing conjunctive management and groundwater storage strategies include: improving water supply reliability and sustainability, reducing groundwater overdraft and land subsidence, protecting water quality, and improving environmental conditions.

Several conjunctive management and groundwater storage strategies identified by the *California Water Plan Update 2013* include:

- Implementation of monitoring, assessment, and maintenance of baseline groundwater levels,
- Encouraging local water management agencies to coordinate with tribes and other agencies involved in activities that might affect long term sustainability of water supply and water quality,
- Local groundwater monitoring and management activities and feasibility studies to increase the coordinated use of groundwater and surface water,

Groundwater recharge areas at the Thomas E. Levy Groundwater Replenishment Facility

- Promoting multiple benefit projects that capture stormwater and infiltrate to the groundwater basin, and
- Stormwater infiltration from stream channels and unlined canals.

Coachella Valley Efforts

Conjunctive management and groundwater storage strategies being considered by the Region are listed below.

- **Groundwater Recharge Areas**. Three groundwater recharge areas are located in the Region: the Whitewater River GRF, Mission Creek GRF, and the Thomas E. Levy GRF (previously Dike No. 4). CVWD is currently constructing a fourth GRF in Palm Desert, and Phase I is expected to begin operating in 2018. For detailed information on the recharge areas see *Chapter 2 Region Description, Section 2.2.2 Water Systems and Distribution - Groundwater*.
- **Stormwater Capture.** Preparation of the Mission Creek-Garnet Hill Subbasins Water Management Plan has identified the opportunity for capturing stormwater runoff from the Little San Bernardino Mountains for recharge into the Mission Creek Subbasin. Such recharge has the possibility to provide positive impacts to the water supply and to offset water quality impacts of recharge water, through dilution. Significant amounts of stormwater runoff are captured at the Whitewater River GRF and in the debris basins and unlined channels of the Western Coachella Valley, which infiltrated to recharge the groundwater basin. CVWD is implementing the Thousand Palms Flood Control Project to provide flood control improvements to the Thousand Palms/Oasis area. This project will implement additional stormwater capture to provide flood protect and recharge the groundwater basin. As part of the Whitewater Watershed Protection Program, many efforts to capture and infiltrate stormwater are being implemented including the water quality management plan which includes infiltration as one of its BMP's. The Whitewater BMP Design Handbook for Low Impact Development includes infiltration basins and trenches which can be used as a tool for stormwater quality management.
- **MWD Groundwater Storage**. MWD stores available surplus water in the Coachella Valley Groundwater Basin. Thus far, it has been a successful conjunctive use program that had been able to store water when it is available either through direct recharge or in-lieu use and recovered through exchanges effectively from the basin during drought periods. MWD benefits by increasing its dry-year water supply and the Coachella Valley benefits from MWD financed facilities and higher water levels. This program allows the MWD the right to withdraw 100,000 to 150,000 AFY of stored water over a ten-year cycle.
- **Imperial Irrigation District Groundwater Storage**. CVWD and Imperial Irrigation District (IID) have signed an agreement that allows IID to store surplus Colorado River water in the Coachella Valley Groundwater Basin. Under the agreement, CVWD would store water for IID subject to availability of storage space, delivery and recharge capacity and the prior storage rights of CVWD, DWA and MWD. CVWD would return stored water to IID by reducing its consumptive use of Colorado River water. This could be accomplished by temporarily reducing or eliminating groundwater recharge. This program would benefit Coachella Valley by providing higher levels of groundwater storage while IID water is stored in the Coachella Valley.

- **Mid-Valley Replenishment Project**. CVWD is constructing a replenishment project at the site of WRP 10. This project is currently in the planning stage, with construction anticipated to begin in 2018.

Desalination

Desalination has been identified as a potential solution for increasing water supplies and reducing groundwater overdraft for the Region. However, desalination requires complicated technologies and is a high energy consuming technology. Desalination offers many potential benefits including: increases water supply and reliability during drought periods, reduced dependency on imported supplies by developing a local supply source, protection of public health, and facilitates more recycling and reuse, given the lower salinity of the source.

Several recommendations identified by the *California Water Plan Update 2013* to facilitate desalination strategies include:

- Desalination projects should be given the same funding opportunities as other water supply and reliability projects,
- Ensure most economical and environmentally appropriate desalination technology is utilized,
- Project sponsors need to ensure planning of desalination projects is a collaborative process that engages key stakeholders, the general public, and permitting agencies.

Coachella Valley Efforts

Desalination strategies being considered by the Region are listed below.

- **CVWD Desalination Project**. The Coachella Valley is evaluating the development of up to 85,000 AFY of semi-perched brackish groundwater.
- **CVWD Desalination Pilot Project**. CVWD received a grant from DWR's Proposition 50 Water Desalination Proposal for a pilot desalination project. The pilot study, which was completed in 2008, compared reverse osmosis with solar still "dewvaporation" of agricultural drainage runoff and brackish groundwater, which was withdrawn from the upper part of the aquifer, which consists mostly of agricultural runoff. Reverse osmosis was the chosen treatment technology to meet the current water quality goals.

Precipitation Enhancement

Precipitation enhancement strategies seek to artificially stimulate clouds to produce more rainfall or snowfall than would naturally occur. The benefit of this strategy is primarily to increase water supply. Several recommendations identified by the *California Water Plan Update 2013* for implementing precipitation enhancement projects include:

- Seeking State support for development and funding of new projects,
- Collecting data and evaluations of existing California precipitation enhancement projects to perform research on the effectiveness of the technology, and
- Investigating the potential of augmenting Colorado River water supply through cloud seeding.

Coachella Valley Efforts

Precipitation enhancement strategies implemented by the Region are listed below:

- **Colorado River Watershed Precipitation Enhancement.** CVWD, through participation in the Colorado River Six Agency Committee (the six California water agencies with contracts for Colorado River water), funds cloud seeding programs for enhancement of snow-pack in areas tributary to the Colorado River.

Recycled Municipal Water

One way to offset current and future water demands for the Region is to treat and reuse recycled wastewater. Recycled municipal water strategies should seek to increase the usefulness of water by reusing a portion of the existing water supply.

The use of recycled water in the Region began in 1965 mainly for the irrigation of golf courses (see **Figure 2-5** for a map of the current water recycling facilities in the IRWM Region). Since 1965, recycled water use has increased from 500 AFY to 14,000 AFY at present (CVRWMG, 2009). Increasing recycled water use can be a potential significant local resource that could be used to help reduce groundwater overdraft and imported water demand.

For the Region, expanding recycled water use can provide the following benefits/potential uses:

- Additional water source for surface irrigation (primarily golf courses and greenbelt areas), and a source of nutrients for crops or landscape plants,
- Reduction of excess nutrient discharge into surface waters,
- Increased groundwater recharge,
- Cooling of industrial and commercial applications,
- Impoundments for recreation, fish hatcheries, and landscape ponds, and
- For toilet flushing, fire-fighting, soil compacting, mixing concrete, among many other uses

Several recycled municipal water strategies are identified by the *California Water Plan Update 2013* and *Water Recycling 2030: Recommendations of California's Recycled Water Task Force* including:

- Increasing funding availability for water reuse/recycling facilities and infrastructure,
- Creating education curriculum for public schools and institutions of higher learning to educate on recycled water,
- Engaging the public in an active dialogue and encouraging participation in the planning process of water recycling projects,
- Providing resources (i.e. funding) to agencies that will perform comprehensive analysis of existing water recycling projects to estimate costs, benefits, and water deliveries, and
- Assessment of water recycling technology to determine least costly and environmentally appropriate technology based on location and need.

Coachella Valley Efforts

Examples of water recycling strategies employed by the Region are listed below.

- **Mid-Valley Pipeline Project**. CVWD recently completed the first phase of this project which entails the installation of a $75 million non-potable distribution system to expand its recycled water/Colorado River water system. This will replace the use of groundwater for irrigation at approximately 50 golf courses. It is estimated this project will reduce groundwater pumping by 50,000 AFY.
- **Water Reclamation Plants.** The Region has three water reclamation plants that currently produce recycled water: CVWD's WRP-7, and WRP-10, and DWA's Recycled Water Treatment Facility. WRP-9 previously produced recycled water but was decommissioned in July 2015. Further detailed information on each of the plant can be found in *Chapter 2 Region Description, Section 2.2.4 Non-Potable Water - Recycled Water*.

  Furthermore, MSWD and IWA are currently preparing for development of their recycled water capabilities. MSWD is designing the new West Valley Water Reclamation Facility (WVWRF). The WVWRF will have an initial capacity of 1.5 MGD and is expected to be operational in 2019. MSWD anticipates adding recycled water capabilities in a subsequent phase. IWA and VSD have formed the East Valley Reclamation Authority, a joint powers authority, to plan, finance, design, and operate a reclaimed water facility to serve recycled water to both agencies' customers.

Sacramento-San Joaquin Delta

Installation of 54-inch Mid-Valley Pipeline for delivering recycled water

Surface Storage- CALFED

Potential benefits from CALFED surface storage include releases of new storage and system flexibility such that other facilities' operations can be modified without reducing current benefits. The additional water storage can be used to improve ecosystem functions, conditions for target species, improve water quality, and supply reliability for water users.

The Coachella Valley primarily benefits from surface storage in the Delta. Thus, projects that support aquatic and riparian ecosystem restoration in the Delta and its tributaries, water conservation, and improving water quality would benefit the Region.

Several CALFED surface storage strategies identified by the *California Water Plan Update 2013* include:

- Decreasing demand of imported water through water conservation programs
- Engaging stakeholders, potential projects participants, tribes, the public, and agencies in identifying, evaluating, and quantifying potential projects that address the CALFED surface storage goals and their effects (positive and negative).
- Developing alternatives and potential future scenarios that incorporate alternative Delta conveyance, operations, and possible climate change effects to allow potential participants to assess their interest in specific projects.
- Developing mechanisms that provide assurance projects are being operated in a manner consistent with the objectives of CALFED surface storage.

Coachella Valley Efforts

Although CALFED surface storage is important for assuring water supply reliability for the Region, there are no CALFED storage efforts underway by local agencies.

Surface Storage- Regional/Local

Though most of water used in the Region is primarily groundwater, the region's imported water supply is held in Lake Cahuilla for system regulation prior to recharge into the aquifer. Projects that address this strategy focus on regional and local surface storage alternatives/expanding surface storage capacity. Several additional benefits of expanding regional/local surface storage include: improved flood management, ecosystem management, emergency water supply, river and lake recreation, capture of surface water runoff, and water supply reliability against catastrophic events and droughts.

Several regional/local surface storage strategies identified by the *California Water Plan Update 2013* include:

- Development of a comprehensive methodology for analyzing project benefits and costs by local agencies,
- Continued studies, research, and dialogue to identify a common set of tools for determining cost and benefits of surface storage projects,
- Adaptively manage operations of existing surface storage facilities,

Lake Cahuilla Regional Park

- Rehabilitation and/or enlargement of existing surface storage infrastructure, and
- Developing water purchasing agreements to buy water from other agencies that own storage reservoirs with substantial water supplies.

Coachella Valley Efforts

An example of a regional/local surface storage strategy employed by the Region is listed below.

- **Lake Cahuilla**. In 1968, the CVWD built Lake Cahuilla (approximately 135-acres) to provide a place to store Colorado River water, to meet changing needs, and avoid wasteful spills.
- **Earthquake Valve Installation**. CVWD and DWA equip their above-ground water storage reservoirs with earthquake valves to protect local surface storage capacity during seismic events. Specific agency efforts are described below. As additional funds become available, additional earthquake valve installations will be installed throughout the Region. These retrofits to existing surface storage infrastructure will conserve water supply in the event of a pipeline break resulting from an earthquake.

8.4.4 Improve Water Quality

*This section complies with the **Identification and Prioritization of Projects** requirements for the SWRP by identifying projects that create source control for pollution and runoff water volume and that reestablish natural water drainage treatment and infiltration systems.*

Drinking Water Treatment and Distribution

Providing a reliable supply of safe drinking water is critical for protecting the public health. Though the Region provides high-quality drinking water, to ensure the public's health is protected, public water systems must continue developing and maintaining adequate water treatment and distribution facilities. Water treatment systems also must be updated and re-evaluated as water quality standards (maximum contaminant levels or MCLs) are updated by regulatory agencies. For example, CVWD began treating water in the Eastern Coachella Valley in response to an updated MCL for arsenic, and it is possible that further treatment will be required when the formal MCL for chromium-6 is established (refer to *Chapter 3 Issues and Needs* for more information).

Several benefits of drinking water treatment and distribution strategies include: improving public health, reducing water distribution delivery problems, and ensuring delivery of high-quality drinking water.

Several drinking water treatment and distribution strategies identified by the *California Water Plan Update 2013* include:

- Working closely with the California Department of Public Health (CDPH) to quantify the total needs for water system infrastructure improvement and replacement,
- Regionalizing and consolidating of public water systems,
- Developing incentives to allow water systems to reduce waste of limited water resources,

- Researching and developing of new treatment technologies,
- Providing additional funding for water supply, water treatment, and infrastructure projects to ensure safe and reliable supply of drinking water for individuals and communities,
- Public water systems joining the California Worker Adjustment and Retraining Notification (WARN) program which provides mutual aid and assistance more quickly than through the Standardized Emergency Management System (SEMS), and
- Creation of source control and reduction programs to address pharmaceuticals and personal care products.

Coachella Valley Efforts

Drinking water treatment and distribution strategies employed by the Region are listed below.

- **CVRWMG Drinking Water Systems**. All the water purveyors that constitute the CVRWMG have water systems that provided a total urban water supply of approximately 170,575 AFY throughout the Region in 2017. For specific information regarding the potable water systems of each CVRWMG agency, please refer to *Chapter 2 Region Description, Section 2.4.1 Water Supply.*
- **CVWD Canal Water Pilot Treatability Study**. In anticipation of using Colorado River water for drinking water, CVWD completed a pilot treatability study for Canal water in 2008. The study investigated three alternative treatment approaches for meeting drinking water regulations, as well as reverse osmosis, to improve the salinity of Colorado River water delivered for urban use.
- **Water Treatment Technology**. In 2009, Envirogen Technologies was contracted to improve the drinking water treatment system for residents in the Desert Oasis mobile home park. These new improvements are meant to improve the water quality of water delivered to the park and create a better quality of life for the residents. One of the major improvements to the drinking water treatment system is the addition of coagulation-filtration technology that will aid in removing source contaminants, such as arsenic.
- **Monitoring**. Water purveyors in the Region monitor drinking water regularly according to state (CDPH) and federal (USEPA) regulations.
- **Short-Term Arsenic Treatment Project.** Pueblo Unido Community Development Corporation is currently implementing a project with financial assistance from Proposition 84 Implementation Grant funding through the Coachella Valley IRWM Program to provide onsite water treatment systems using reverse osmosis technology to cost-effectively remove arsenic and improve the quality of drinking water for DACs without access to public water systems.
- **Nitrate Remediation**. In cooperation with the CDPH, and through funding from the American Recovery and Reinvestment Act, MSWD has resolved nitrate contamination issues for Whispering Sands Mobile Home Park. Significant engineering challenges had to be overcome in order to connect the mobile home park to MSWD's potable water system.
- **Regional Well Retrofit and Abandonment Program.** CVWD is implementing a program to retrofit improperly sealed and abandoned water supply wells to reduce the risk of groundwater contamination and groundwater loss. CVWD received a Proposition 84 – Round 4 Implementation

Grant to fund this program. Improperly sealed or abandoned wells can provide a conduit for contaminants to enter the groundwater basin, which is the Coachella Valley's main water supply.

- **CVWD Chromium-6 Stannous Chloride Demonstration Project.** CVWD has been testing options to treat Chromium-6 contaminated water supplies for years. Through this testing, CVWD discovered an alternative treatment technology to reduce Chromium-6 in groundwater in a cost-effective, environmentally-friendly manner using stannous chloride. Stannous chloride is an approved food and drinking water additive that works by converting chromium-6 into chromium-3, an important nutrient needed to process certain sugars, fats, and proteins. The State approved CVWD's plan for a full-scale demonstration project using stannous chloride, which began in August 2017. CVWD completed the demonstration project in February 2018. The results of this project showed that Chromium-6 levels were maintained below the potential MCL of 10 micrograms per liter (ug/L) throughout testing. With continuous chlorine residual of 0.3 milligrams per liter (mg/L) in the system, very little Chromium-3 re-oxidized back to Chromium-6, and Chromium-6 levels remained below 10 ug/L. Turbidity remained significantly below MCL of 5 NTU.
- **CWA Chromium-6 Treatment Project.** CWA has been working on a project to treat drinking water supplies that have elevated levels of Chromium-6. CWA received a Proposition 1 DAC Involvement Grant to fund the design portion of this project. CWA is waiting on the results of CVWD's Demonstration Project to determine the treatment process that will be used.
- **DAC Infrastructure Taskforce**. CVWD established the DAC Infrastructure Taskforce, a collaborative group of water agencies, non-profit agencies, and community stakeholders, to assist DACs in securing access to safe affordable drinking water, wastewater, and flood control services through strategic planning, funding procurement, needs assessment, and reporting.
- **Coachella Valley Consolidation Projects.** There are many small DACs throughout the Coachella Valley, particularly in Eastern Coachella Valley, that are not connected to municipal water systems and rely on private groundwater wells. The majority of these communities have severe water quality and reliability issues. CVWD and CWA have completed and continue to work on consolidating communities that currently are not connected to a municipal water system and do not have a reliable water supply source. CVWD is currently working on the East Coachella Valley Water Supply Project, which will analyze and prioritize small DAC water systems in Eastern Coachella Valley to identify high priority systems to be consolidated with the CVWD. CVWD received Proposition 84 grant funding, as well as Proposition 1 DAC Involvement Grant funding for the consolidation project in Eastern Coachella Valley. CWA has received Proposition 84 – Round 4 Implementation Grant funding for the Shady Lane Water and Sewer Connection Project. CWA is currently applying to the Drinking Water State Revolving Fund (DWSRF) program for additional funding to complete the Shady Lane Water Connection Project. Two small mutual water systems in the City of Indio that serve DACs – Boe Bel Heights Mutual Water Association and the Waller Tract Mutual Water Association – are in the process of being consolidated into the IWA.

Groundwater Remediation/Aquifer Remediation

Groundwater is a valuable local resource. However, portions of aquifers have degraded water quality that does not support beneficial use of groundwater. Groundwater Remediation/Aquifer Remediation strategies

should seek to improve the quality of degraded groundwater for beneficial use. Groundwater contamination can come from a multitude of sources such as: heavy metals, salts, organic and inorganic pollutants, nitrates, arsenic, pesticides, septic systems, and urban and agricultural activities. Several benefits of adopting groundwater remediation/aquifer remediation strategies include: availability of additional water supplies, avoiding purchasing alternate water supplies, and storage of excess surface water supplies in remediated aquifers.

Several groundwater remediation/aquifer remediation strategies identified by the *California Water Plan Update 2013* include:

- Limiting potentially contaminating activities in recharge areas,
- Identifying historic commercial and industrial sites with contaminated discharges and responsible parties to remediate sites,
- Implementing source water protection measures, and
- Establishing and supporting funding for detecting emerging contaminants by commercial laboratories and installation of wellhead treatment systems.

Coachella Valley Efforts

Groundwater remediation strategies employed by the Region are listed below.

- **Recycled Water Program**. The primary use of recycled water in the Coachella Valley is for turf irrigation. Studies with the University of California Turf Grass Research Center have shown turf to be effective in removing nitrogen from recycled irrigation water. When recycled water is applied to turf grass, nitrogen is taken up by the plant, greatly reducing what would otherwise percolate into the groundwater basin. Golf course managers in the Coachella Valley account for nitrogen in recycled water by reducing the application of chemical fertilizers.
- **Shallow Groundwater Wells.** DWA augments its recycled water supply with shallow groundwater wells that are close to its water reclamation plant. This lower quality water (wastewater percolated at a nearby facility) is used for irrigation, which prevents the concentrated body of low-quality water from migrating down to the higher quality groundwater basin.
- **Eastern Coachella Valley Groundwater Assessment**. The Rural Community Assistance Corporation (RCAC) conducted four drinking water system assessments in community systems located within mobile home parks of small groundwater systems used to supply drinking water. This assessment found arsenic to be a major water quality problem. One of the recommendations provided by the RCAC for improving water quality was to utilize groundwater remediation technology at the point of use.
- **Septic to Sewer Conversion**. MSWD, DWA, CWA, CVWD, and the Cities of Palm Springs and Cathedral City have converted a large number of septic systems to municipal sewer in order to protect the underlying aquifer from nitrate contamination.
- **Remediation for Uranium**. Due to high uranium levels, MSWD has removed a production well (900 gallons per minute (GPM)) from service and placed wellhead treatment on a second

production well (2,000 GPM). The second well will also be removed from the potable water distribution system when a replacement is constructed.

Matching Quality to Use

Matching water quality to use is directly linked to four other resource management strategies: Pollution Prevention, Recycled Municipal Water, Salt and Salinity Management, and Groundwater/Aquifer Remediation, because maintaining water to its highest quality allows for greater potential uses of the water. Matching quality to use strategies recognize that water quality should suitably match its intended use such that water quality constituents do not adversely affect the intended use of the water. Several benefits of maintaining and matching water quality to use include: reduction of disinfection byproducts in delivered drinking water sources, opportunities for blending water sources through improvements in treated water quality, potential to reduce energy use due to the avoidance of needing to treat water to higher quality and avoiding costly treatment procedures.

Several strategies for matching water quality to use identified by the *California Water Plan Update 2013* include:

- Managing water supplies to optimize and match water quality to the highest possible use and to the appropriate technology,
- Encouraging upstream users to minimize the impacts of non-point urban and agricultural runoff and treated wastewater discharges,
- Supporting the development of salt management plans,
- Reviewing projects to determine the potential impacts from wastewater elimination into local streams, and
- Supporting research into solutions to the potential conflicts between ecosystem restoration projects and the quality of water for drinking water purposes.

Coachella Valley Efforts

Projects and programs that match quality to use in the Region are listed below.

- **CVWD Desalination Project**. As summarized in the Desalination section above, this project is currently being planned by the CVWD, and one of its main purposes is to treat and reuse semi-perched brackish groundwater at a quality appropriate for agricultural irrigation.
- **Uses of Non-Potable Water.** MSWD wells with high uranium that cannot be part of the potable distribution system will not be abandoned. They may be called into service to provide construction water in anticipation of future building activity or to provide water for industrial uses such as power plants.
- **Coachella Valley Salt and Nutrient Management Plan**. Through a collaborative effort, CVWD, DWA, and IWA developed a Salt and Nutrient Management Plan (SNMP) for the Coachella Valley Groundwater Basin. The SNMP was completed in June 2015 and the implementing agencies are currently in the process of addressing comments from the Regional Water Quality Control Board for a plan that will provide guidance for basin-wide management of salts and nutrients.

- **Regional Recycled Water Use**. The primary use of recycled water in the Coachella Valley is for turf irrigation. When recycled water is applied to turf grass, nitrogen is taken up by the plant, greatly reducing what would otherwise percolate into the groundwater basin. The CVRWMG agencies have been working to increase regional recycled water use and have implemented several programs including the IWA Recycled Water Project and the Non-Potable Water Use Expansion Program. The IWA Recycled Water Project, which received funding through Proposition 84 – Round 3, is a collaborative project between IWA and VSD to build a reclaimed water facility to treat wastewater collected by VSD to provide recycled water to customers within both agencies service areas. The Non-Potable Water Use Expansion Program, which was funded through a Proposition 84 – Round 2 Implementation Grant, delivers canal water and recycled water to golf courses for turf irrigation.

Pollution Prevention

Pollution prevention strategies are vital for protecting and improving water quality at its source and reducing the need for costly water treatment options. Preventing pollution throughout the watershed ensures water supplies can be used, and reused, for a broad number of uses by downstream water users. Several benefits of implementing pollution prevention strategies include:

- Protecting surface water quality to increase opportunities for water contact recreation, water sources for desalination plants, and maintaining suitable habitat for wildlife, and
- Preventing further degradation of surface and groundwater quality to help achieve Total Maximum Daily Loading (TMDL) goals.
- Reducing discharge to the Whitewater River/Coachella Valley Storm Water Channel, a 303(d) listed impaired water bodies.

Several pollution prevention strategies identified by the *California Water Plan Update 2013* include:

- Developing proper land management practices that prevent sediment and pollutants from entering source waters,
- Establishing drinking water source and wellhead protection programs to protect drinking water sources and groundwater recharge areas from contamination,
- Identifying communities relying on groundwater contaminated by anthropogenic sources for drinking water and take appropriate regulatory action, and

Over-irrigating landscape can result in dry-weather urban runoff that may result in pollutant transport

- Addressing improperly destroyed, sealed and abandoned wells that can serve as potential pathways for groundwater contaminants.

Coachella Valley Efforts

Examples of current pollution prevention strategies employed by the Region are listed below.

- **Whitewater River Watershed Municipal Separate Storm Sewer System (MS4) Program.** The Riverside County Flood Control and Water Conservation District (RCFCWCD), the County of Riverside, CVWD, and the Cities of Cathedral City, Coachella, Desert Hot Springs, Indian Wells, Indio, La Quinta, Palm Desert, Palm Springs, and Rancho Mirage have joined forces to implement the National Pollutant Discharge Elimination System (NPDES) permit and encourage business and the general public to employ Best Management Practices (BMPs) to prevent water pollution. This program has seven subprograms for improving stormwater management and preventing water pollution:
    - *Illicit Connection/Illegal Discharge (IC/ID) Program*- is designed to detect and eliminate improper discharges to the municipal storm drain system. The program includes BMPs to manage stormwater runoff and non-stormwater discharge, training for municipal staff, and an outreach component.
    - *Commercial/Industrial Program*- is designed to conduct source identification and outreach to reduce discharge of pollutants from both commercial businesses and industrial operations.
    - *New Development/Redevelopment and Construction Activities*- focuses on integrating stormwater management measures into current development review processes within the Permittees' Planning and Public Works Departments.
    - *Private Construction Activities Program*- focuses on reducing pollutants in urban runoff to the stormwater system from construction activities resulting in land disturbance of one or more acres.
    - *Permittee Activities Program*- addresses discharge pollutants from public agency activities and facilities through regular inspection and maintenance of stormwater facilities to ensure protection of receiving waters.
    - *Public Education and Outreach Program*- the Permittees are committed to implementing a strategic and comprehensive public education program to maintain the integrity of the receiving waters to sustain beneficial uses.
- **Surface Water Protection**. DWA has an extensive security program in place to protect surface water supplies from pollution, including aerial and traditional surveillance and an on-site, resident staff security guard.

Salt and Salinity Management

Accumulation of salt in the soil can impair crop productivity, particularly in arid regions such as the Coachella Valley, thus salinity management is a critical concern for local farmers. Salinity management strategies should understand the dynamics of salt movement and seek to establish or improve its management in the Region. Several potential benefits of establishing or improving salt and salinity management strategies include: protecting water resources and improving water supplies, securing, maintaining, expanding, and recovering usable water supplies, and avoiding future significant costs of treating water supplies and remediating soils.

Several salt and salinity management strategies identified by the *California Water Plan Update 2013* include:

- Developing a regional salinity management plan, and interim and long-term salt storage, salt collection, and salt disposal management projects,
- Monitoring to identify salinity sources, quantifying the level of threat, prioritizing necessary mitigation action, and working collaboratively with entities and authorities to take appropriate action,
- Reviewing existing policies to address salt management needs and ensure consistency with long-term sustainability,
- Collaborating with other interest groups to optimize resources and effectiveness,
- Identifying environmentally acceptable and economically feasible methods for closing the loop on salt, and
- Funding for research and projects, with funding prioritized based on greatest needs.

Coachella Valley Efforts

An example of current salt and salinity management strategies employed by the Region is listed below.

- **Tile Drain System.** Portions of the Coachella Valley Groundwater Basin have a shallow confining layer of clay which creates a perched water table. An extensive system of collector drains has been installed to drain the soil below the root zone and allow the removal of accumulated salts in the soil. Draining the perched groundwater layer reduces the downward migration of surface contaminants to underlying drinking water aquifers.
- **Mobilized Salinity Assessment Platform (Salt Sniffer)**. The Coachella Valley Resource Conservation District (CVRCD) assists farmers in salinity management by conducting on-site detailed assessments of soil salinity content using the Mobilized Salinity Assessment Platform (Salt Sniffer). The Salt Sniffer measures salinity levels of fields using electromagnetic field sensors and then records salinity levels and locations as it passes over the ground using a Global Positioning System (GPS). This process creates detailed maps of the vertical and horizontal salinity patterns which can help farmers analyze and manage irrigation and drainage problems and variation in crop production rates due to salinity. Usually, CVRCD annually performs 12 surveys with the Salt Sniffer.
- **Coachella Valley Salt and Nutrient Management Plan**. Through a collaborative effort, CVWD, DWA, and IWA developed a SNMP for the Coachella Valley Groundwater Basin in accordance with the State's Recycled Water Policy. The plan identifies Management Strategies and recommends a Monitoring Plan that protects groundwater beneficial uses and supports future recycled water use needed to provide a sustainable groundwater supply for the Coachella Valley. The plan was complete in June 2015 and provides guidance for basin-wide management of salts and nutrients, and the agencies are implementing this monitoring plan.

Urban Runoff Management

Urban runoff management strategies should manage both stormwater and dry weather runoff. To successfully manage urban runoff, agencies need to incorporate other resource management strategies such as pollution prevention, land use planning and management, watershed management, urban water use efficiency, recycled municipal water, recharge area protection, and conjunctive management. Several potential benefits of urban runoff management strategies include: minimizing soil erosion and sedimentation problems, reducing surface water pollution, protecting natural resources, protecting and augmenting groundwater supplies, and improving flood protection. Implementation of, and compliance with, the BMPs of the region's 2013 MS4 permit are anticipated to reduce urban runoff from average rain events. Additionally, much of the runoff from urbanized areas of the region flows into the engineered portion of the Coachella Valley Stormwater Channel (CVSC), reducing the concerns of sedimentation and erosion.

Several urban runoff management strategies identified by the *California Water Plan Update 2013* include:

- Coordinating efforts with agencies, stakeholders, and the public to decide how urban runoff management should be integrated into work plans,
- Encouraging public outreach and education concerning funding and implementation of urban runoff measures,
- Designing recharge basins to minimize physical, chemical, or biological clogging,
- Working with community to identify opportunities to address urban runoff management,
- Providing incentives for the installation of low impact development features on new and existing developments, and
- Emphasizing source control measures and strong public education/outreach efforts as being the most effective way to manage urban runoff in this highly arid region.

Coachella Valley Efforts

- **Coachella Valley-wide Model Landscape Ordinance**. In addition to enforcement of statewide prohibitions on runoff and overspray, the Model Landscape Ordinance adopted by most Coachella Valley agencies prohibits new and renovated landscape irrigation systems that allow overspray to the streets. A non-irrigated buffer zone is required between the curb and walks to prevent water going to the street.
- **Tiered Conservation Water Rates**. The majority of the Coachella Valley water users are on a tiered water rate, whereby use above that needed for basic living and desert appropriate landscape irrigation, is billed in increasing multiples of the base water rate. This is a disincentive to allowing runoff.
- **Dry Weather Investigations**. The California Department of Transportation (Caltrans) conducted weekly field investigations of Caltrans facilities in the CVSC to document dry weather runoff, if any, that Caltrans activity contributes. To prevent any future dry weather discharges, it was recommended Caltrans inspect and monitor their irrigation systems. Additionally, it was recommended that Caltrans should work with local governing agencies to make property owners aware of BMPs to reduce urban runoff pollution.

- **Inspection by MS4 Permittees**. The Storm Water Management Plan includes provisions to inspect some commercial and industrial facilities. Inspection includes outreach and verifications to prevent and reduce the possibility of illegal discharges. Field screening during maintenance and upkeep of the MS4 systems for the detection and elimination of illicit discharges also required.

8.4.5 Improve Flood Management

*This section complies with the **Identification and Prioritization of Projects** requirements for the SWRP by identifying projects that reestablish natural water drainage treatment and infiltration systems.*

Flood Risk Management

The Region is subject to severe floods and alluvial-fan flash flooding. Managing of flood risk in the IRWM Region is currently done through a series of flood control systems that consist of debris basins, levees, storm drains, retention basins, dry wells, and stormwater channels. Reducing flood risk will require management strategies that enhance flood protection through projects and programs that assist in managing flood flows and to prepare for, respond to, and recover from floods. Several potential benefits of establishing or improving salt and salinity management strategies include:

CVWD's Stormwater Facilities Provide Flood Protection

- Reducing risk to lives and property from flooding events,
- Enhancing water quality using strategies that reduce sediment loads,
- Increasing water supply from structural improvements and detention of floodwaters, and
- Enhancing terrestrial and aquatic habitat and providing ecosystem restoration benefits through floodplain restoration and setting back levees.

Several flood risk management strategies identified by the *California Water Plan Update 2013* include:

- Structural approaches that can consist of:
  - Setting back levees
  - Modifying channels to include lining (concrete, rip rap, etc.) to improve conveyance of flood flows
  - High flow diversions into adjacent lands to temporarily store flows
  - Improved coordination of flood operations
  - Maintaining facilities to secure the long-term preservation of flood management facilities

- Land use management approaches that consist of:
  - Floodplain function restoration to preserve and/or restore the natural ability of undeveloped floodplains to absorb, hold, and release floodwaters
  - Floodplain regulation
  - Development and redevelopment policies
  - Housing and building codes
- Disaster Preparedness, Response, and Recovery for flood risk management approaches such as:
  - Information and education
  - Disaster preparedness
  - Post-flood recovery

Coachella Valley Efforts

Listed below are specific programs, projects and facilities with flood risk management primary components. In addition to these elements below, stormwater retention and infiltration efforts mentioned below are present in the Region in stormwater ordinances as part of the NPDES.

- **Federal Flood Management Program**. Buildings and new developments are required to be designed in conformance with the National Flood Insurance Program and local ordinances implementing the program. Planning agencies and flood agencies review developments prior to approval.
- **RCFCWCD Facilities:** The RCFCWCD is the regional flood management authority for the western 40% of Riverside County. Since its establishment in 1945, the RCFCWCD has been instrumental in limiting massive flooding that was previously a common occurrence in Riverside County through major flood control facilities such as dams, flood basins, open channels, levees and major underground storm drains. The RCFCWDC is charged with the daily maintenance and repair of over 420 miles of storm drains, open channels, and levees, as well as 40 dams and detention basins. In addition, the RCFCWCD is responsible for overseeing flood control construction project in the jurisdiction.
- **CVWD Stormwater Facilities**. CVWD provides flood protection for 590 square miles of the Region. Within the boundaries, there are 16 stormwater protection channels totaling approximately 135 miles, that run along the natural alignment of dry creeks and several dikes and levees that have been designed and built to collect rapidly moving floodwaters moving onto the Coachella Valley floor. The Whitewater River Stormwater Channel (WRSC)/CVSC is the main channel that runs approximately 50 miles from the Whitewater area north of the City of Palm Springs to the Salton Sea. CVWD is actively involved in securing funding for further flood control protection and improvements on the Coachella Valley's stormwater system.
- **Whitewater River Subbasin/Thousand Palms Flood Control Project**. This project would alleviate flooding from a 100-year flood, on approximately 2,800 acres of land in the northern portion of the Coachella Valley near Thousand Palms. The project involves the construction of four discontinuous levee segments and the purchase of 550 acres of floodway.

- **North Indio Flood Control Project:** This project would design and construct a regional flood control conveyance channel for the North Indio Stormwater Master Plan Area to convey the 100-year flood from Del Webb Sun City to Sun City Shadow Hills and then on to the Coachella Valley Stormwater Channel.

8.4.6 Practice Resources Stewardship

*This section complies with the **Identification and Prioritization of Projects** requirements for the SWRP by identifying projects that enhance habitat and open space through runoff management, and that use publicly owned lands to capture and use runoff.*

Agricultural Lands Stewardship

Agricultural lands stewardship is the practice by land managers of conserving and improving land for various conservation purposes as well as protecting open spaces and rural communities. This strategy should allow landowners to maintain their farms and ranches rather than being forced to sell their land due to pressures from urban development. Several potential benefits of agricultural lands stewardship management strategies include: protecting environmentally sensitive lands, recharging groundwater, improving water quality, providing water for wetland protection and restoration, increasing carbon sequestration within soil, and reducing costs of flood management.

Several agricultural land stewardship strategies identified by the *California Water Plan Update 2013* include:

- Stabilizing stream banks to slow bank erosion and filter drainage water from the fields,
- Installing windbreaks (i.e. trees and/or shrubs) along field boundaries to help control soil erosion, conserve soil moisture, and improve crop protection among many other benefits,
- Performing conservation tillage to increase water infiltration, soil water conservation, and reduce erosion and water runoff, and
- Encouraging irrigation tail water recovery to help capture and reuse irrigation runoff water to benefit water conservation and off-site water quality.

Coachella Valley Efforts

- **Farmer Education Meetings**. CVRCD, along with NRCS, DWR, University of California Cooperative extension, CVWD and County of Riverside, coordinates and carries out workshops that teach farm owners, managers, and irrigators concepts in irrigation water and salinity management as well as promote new technology to help the conservation effort.

Ecosystem Restoration

Ecosystem restoration strategies are vital for improving our modified natural landscapes and biological communities. Restoration of aquatic, riparian, and floodplain ecosystems are of primary concern as those are most directly affected by water and flood management actions and likeliest to be affected by climate change. Several potential benefits of establishing ecosystem restoration strategies include: improves water

quality and quantity for wildlife, aquatic species, and human consumption, and increases diversity of native species and biological communities.

Several ecosystem restoration strategies identified by the *California Water Plan Update 2013* include:

- Increasing the use of setback levees and floodwater bypasses,
- Creating programs that support and fund the identification of stream flow needs,
- Establishing biological reserve areas that connect or reconnect habitat patches,
- Expanding riparian habitat,
- Devising climate change adaptation plans that benefit ecosystems, water, and flood management,
- Reproducing natural flows in streams and rivers,
- Controlling non-native invasive plant and animal species, and
- Filtering of pollutants and recharging aquifers.

Coachella Valley Efforts

- **Coachella Valley Multiple Species Habitat Conservation Program (CVMSHCP) and Water Management Planning.** Sensitive habitat areas that are important to the CVMSHCP can be found throughout the Coachella Valley. Additionally, the Mission Creek Subbasin is a significant water source for the Region, as well as the primary source of water for MSWD customers. To keep those two factors in balance, the Mission Creek-Garnet Hill Water Management Plan (WMP) was developed with minimizing environmental impacts as one of its four plan objectives. MSWD participates in the Reserve Management Oversight Committee, which is charged with providing direction for monitoring and management of the CVMSHCP reserve lands.
- **CVWD Constructed Habitat Project.** CVWD is currently in the design stage of implementing a habitat restoration project that will construct approximately 66 acres of wetlands, 44 acres of Sonoran cottonwood-willow riparian forest, and 25 acres of desert pupfish habitat.

Forest Management

Forest management strategies should focus on activities that are designed to improve the availability and quality of water for downstream users on both publicly and privately-owned forest lands. Water produced by forest has an economic value that equals or exceeds that of any other forest resource (DWR 2009). Several potential benefits of establishing forest management strategies include: interception of rainfall, reduction of urban runoff, energy-efficient shade during hot weather, reduce flooding and increase dry-season base flows, and protection from surface erosion and filtering pollutants.

Several forest management strategies identified by the *California Water Plan Update 2013* include:

- Establishing long-term monitoring to understand hydrologic changes resulting from possible climate change effects through the installation of stream gages, precipitation stations, water-quality and sediment monitoring stations, and long-term monitoring wells,
- Increasing research efforts into identifying effective BMPs for forest management and the effects of wildfires,

- Assessing sediment sources and erosion processes in managed and unmanaged forested watersheds,
- Increasing multi-party coordination of forest management,
- Improving communication between downstream and upstream water users, and
- Developing public education campaigns for water users.

Coachella Valley Efforts

Although local water purveyors currently have no responsibility to manage the San Gorgonio forested areas that drain to the Coachella Valley, protection of those headlands is important for ensuring high quality surface runoff supplies.

Land Use Planning & Management

Developing strong, collaborative relationships between land use planners and water managers is critical to ensure the effective use of resources, efficient land-use patterns, and integrated water management practices. Thoughtful land use planning to create more sustainable communities can increase water use efficiency while also having flood management benefits, improving water supply and quality, creating recreation features, and adaptively managing climate change. For example, incorporating opportunities to use existing publicly owned lands and easements to capture, clean, store, and use stormwater and dry weather runoff into land use planning is an important part of stormwater resource management planning. As a growing region with many unique land use and cultural characteristics, the Coachella Valley can greatly benefit from increased collaboration between land use planners and water managers.

Several land use planning and management strategies identified by the *California Water Plan Update 2013* include:

- Promote cross-cutting funding and planning programs,
- Integrate regional water management and regional and local land use plans,
- Provide funding, incentives, and technical assistance,
- Enhance research and data gathering, and
- Promote interagency coordination.

Coachella Valley Efforts

- **Urban Water Management Plans.** During each 5-year cycle, water managers and land use planners (from local municipalities and CVAG) collaborate on population growth projections and what planned growth means for water demands. The plans include reporting on existing land uses within each water supplier's jurisdiction and any potential changes to land use classifications and density. Notable changes include conversion from agricultural land to urban uses, which can reduce water demands, but increase runoff issues. In this way, land use plans are a significant reference in how water suppliers estimate future water savings and demand projections.
- **Coachella Valley-wide Model Landscape Ordinance**. The Model Landscape Ordinance, adopted by most Coachella Valley agencies, encourages water use efficiency by establishing water efficient landscape requirements for newly installed and rehabilitated landscapes. This includes promoting

appropriate plant material and efficient irrigation techniques to create a "Lush and Efficient" landscape theme. Provisions mandate that a certified landscape designer, auditor, or architect submit a "landscape documentation package." This package includes elements such as calculations of maximum applied water allowance, a landscape design plan and irrigation design plan. Areas covered by this ordinance that exceed one acre may be subject to a landscape irrigation audit at the discretion of the water purveyor if it is determined that the maximum applied water allowance has been exceeded for two consecutive years. These strategies ensure that development maintains appropriate water use levels for the local Coachella Valley desert environment.

Recharge Area Protection

Recharge areas provide the primary means of replenishing groundwater. Strategies to protect recharge areas ensure the continual capability for the area to recharge rather than become covered by urban infrastructure and prevent pollutants from entering groundwater. Protecting recharge areas requires the implementation of urban runoff management strategies, groundwater remediation strategies, and conjunctive management strategies. The Coachella Valley primarily depends on groundwater for local water supplies. Several potential benefits of establishing ecosystem restoration strategies include: protecting and maintaining high-quality groundwater, increased amount of groundwater storage, reduction of urban runoff, and some removal of microbes and chemicals through percolation.

The Coachella Valley has four groundwater recharge areas, including one at Windy Point.

Several recharge area protection strategies identified by the *California Water Plan Update 2013* include:

- Expanding research into surface spreading and the fate of chemicals and microbes in recharge water,
- Increasing funding for the identification and protection of recharge areas,
- Creating education and media campaigns to increase public awareness and knowledge on the importance of recharge areas and relevancy to groundwater,
- Requiring source water protection plans, and
- Developing methods for analyzing the economic benefits and costs of recharge areas.

Coachella Valley Efforts

- **Groundwater Recharge Areas**. The Region operates three groundwater recharge areas: the Whitewater River Groundwater Replenishment Facility (GRF), Mission Creak GRF, and the Thomas E. Levy GRF. CVWD is constructing a fourth GRF in Palm Desert. The process used to select these recharge areas aims at maximizing recharge area protection by considering factors such as development densities and pollution generation, including avoidance of septic systems and

industrial activities. In addition, the CVRWMG agencies monitor groundwater near recharge areas to ensure that the recharge areas retain their effectiveness, and to assess groundwater quality within recharge areas. For detailed information see *Chapter 2 Regional Description, Section 2.2.2 Water Systems and Distributions - Groundwater, - Recharge Areas*.

- **Groundwater Recharge Area Operation Protection.** Regular maintenance of recharge spreading basins includes silt, debris and invasive plant species removal. This helps to protect the function of the basins by maintaining or increasing infiltration rates, maintaining spreading basin capacity, and minimizing water loss from evaporation. This helps to maximize the use of recharge water and protect groundwater levels through reducing overdraft. Ultimately it can contribute to water affordability by reducing the need for potential future additional imported water to use for recharge, reducing the potential need for more expensive, deeper wells to access lower groundwater, and the potential future need for more spreading basins.
- **Well Management Programs**. Well management programs in Coachella Valley include well construction/destruction/abandonment policies, artesian well management and well capping. The construction/destruction/abandonment policies protect against improperly constructed or abandoned wells which can lead to groundwater contamination. MSWD is actively pursuing a program to place residences and businesses on the MSWD water supply system and promoting the proper abandonment of unused/inactive wells. The CVWD is also sponsoring a Regional Well Retrofit and Abandonment Program that will retrofit improperly sealed or abandoned water supply wells to reduce the risk of groundwater contamination and loss. The artesian well management is a program that will be developed by CVWD to educate and work with well owners to properly control artesian wells. Another CVWD program is well capping, in which wells no longer in use will be identified and capped, rather than destroyed, so that the wells can continued to be used for groundwater monitoring.

Sediment Management

Sediment is a valuable natural resource that is limited in supply. Sediment management is a critical component of watershed management. Predicting the impact of sediments on surface waters involves understanding the cumulative impacts of past, present, and proposed human activities within a watershed. Sediment management actions are determined by the specifics of each situation, depending on where the management actions will occur and whether the management actions involve a natural environment or built environment.

Several sediment management strategies identified by the *California Water Plan Update 2013* include:

- Reconcile conflicting sediment management policies and regulations,
- Sediment source management,
- Sediment transport management,
- Sediment deposition management, and
- Data acquisition and management.

Coachella Valley Efforts

- **Groundwater Recharge Area Operation Protection.** Regular maintenance of recharge spreading basins includes silt removal. This helps to protect the function of the basins by maintaining or increasing infiltration rates, maintaining spreading basin capacity, and minimizing water loss from evaporation. This helps to maximize the use of recharge water and protect groundwater levels through reducing overdraft.
- **Sediment Management at Site Level.** Construction Permits in the Region include specific sediment management requirements to avoid sediment from construction activities to reach receiving water.

Watershed Management

Watershed management strategies increase and sustain a watershed's ability to provide for the diverse needs of the communities that depend on it. Managing at the watershed scale has proven effective in coordinating and integrating the management of numerous physical, chemical, and biological processes. Watershed management provides a basis for greater integration and collaboration among those policies and actions. Several potential benefits of adopting watershed management strategies include:

- Maintaining, restoring, or enhancing the many functions in the natural systems within a watershed,
- Maintaining reliable quantities of clean water and agriculture,
- Avoiding costs by reducing flood or fire damages, and
- Increasing or maintaining biological diversity.

Several watershed management strategies identified by the *California Water Plan Update 2013* include:

- Creating a scientifically valid tracking and reporting method to document changes in the watershed,
- Assessing the performance of projects and programs,
- Providing watershed information to better inform local land use decision makers on how to maintain and improve watershed functions, and
- Using watershed approaches in which all RMS strategies are coordinated.

Coachella Valley Efforts

The Region is part of the Whitewater River Watershed. An example of a current watershed management strategy underway in the Region is listed below.

- **Coachella Valley Preserve Tamarisk Control**. The Nature Conservancy implemented a tamarisk control effort in the Coachella Valley Preserve to protect and restore critical watershed functions. Non-native tamarisk was drying up springs that provided water supply to native wildlife. Removal of tamarisk was accomplished by volunteers and California Conservation Corps crews and has restored natural habitats and water flows to the preserve.

8.4.7 People & Water

Economic Incentives (Loans, Grants and Water Pricing)

Economic incentives can influence water management, amount of water use, time of use, wastewater volume, and source of supply. The types of incentives include low interest loans, grants, and water rates and rate structures. Free services, rebates, and use of tax revenues to partially fund water services have a direct effect on the prices paid by water users. Several potential benefits of establishing or improving economic incentive strategies include: promoting water management practices that meet federal, State, and local policy goals (such as water use efficiency), and social and environmental wellbeing.

Several economic incentive strategies identified by the *California Water Plan Update 2013* include:

- Instituting loans and grant programs that support better regional water management,
- Adopting policies that promote long-term water use efficiency such as water rate incentives,
- Developing modeling tools for economic analyses of economic incentives as well as guidelines and ranking criteria for grant and loan awards, and
- Exploring innovative financial incentives.

Coachella Valley Efforts

- **Water Audits and Irrigation Controllers**. CVWD and DWA provide water audits for farms, golf courses, and homeowner associations. Significant savings on water use have been realized through these audits, as they bring wasteful water use to the attention of the user and provide recommendations for greater efficiency. Several of the CVRWMG agencies also offer or rebate weather-based irrigation controllers at low or no cost to encourage conversions.
- **Tiered Conservation Water Rates**. The majority of the Coachella Valley water users are on a tiered water rate whereby use above that needed for basic living and desert appropriate landscape irrigation is billed in increasing multiples of the base water rate.
- **MSWD Financial Assistance Program.** Since the 1970s, MSWD has formed six sewer assessment districts to facilitate the abatement of septic systems and connection to the municipal wastewater collection system. Through MSWD financial assistance programs, customers can finance connection fees and abatement costs, with repayments made on their monthly bill. The program provides positive results by reducing septic discharge to the aquifer; as well, MSWD has experienced no debt write-off. DWA also helped customers in portions of its service area convert from septic to sewer through no-interest loans.
- **USDA Conservation Programs.** This is a cost-share program through the NRCS that is specific to the conservation of water and soil on agricultural land. The program funds a percentage of the cost for the installation of conservation projects and the remaining portion of the cost of the project is funded by the program applicant. The NRCS office in Indio provides assistance to farmers within the Coachella Valley. For 2004 and 2005, the Indio NRCS office signed 25 Environmental Quality Incentives Program (EQIP) contracts with Coachella Valley farmers, which includes the allocation of $350,000 of funds for water and soil conservation projects.

- **Regional Planning via IRWM/SWR Plan.** The CVRWMG has prepared a joint IRWM Plan and SWRP functional equivalent that complies with the *2016 IRWM Guidelines* and the *2015 SWRP Guidelines*. This IRWM/SWR Plan provides the agencies and organizations in the watershed eligibility to apply for the Proposition 1 IRWM Grant Program and Stormwater Grant Program (SWGP).

Outreach and Engagement

Historically a very technical discipline, water management professionals have realized the need to increase and improve public outreach and engagement strategies as the water issues faced become larger and demands on water systems grow. The Coachella Valley is comprised of many diverse communities with varying water resource needs and challenges. It is critical for the region to continue to expand outreach and engagement efforts to best serve these communities.

Several outreach and engagement strategies identified by the *California Water Plan Update 2013* include:

- Include a section on what level of public engagement is appropriate in project planning,
- Include requirements for public engagement in grants,
- Offer facilitation and collaboration training to staff,
- Share best practices, leverage activities, and provide efficiencies,
- Collaborate on outreach campaigns within regions,
- Calibrate the extent of engagement in relation to the policy or project being developed, and
- Document lessons learned from collaboration efforts.

Coachella Valley Efforts

Various education and outreach programs to promote water conservation and water quality protection are currently underway in the Region. Examples of these existing education and outreach strategies are listed below.

- **Water Conservation Education**. The CVRWMG agencies reach out to thousands of children annually to educate them on water conservation. There are multiple components to CVWD's programs, including in-class presentation and science fair promotion and sponsorship. MSWD is a Groundwater Guardian affiliate and shares the mission of public outreach to protect groundwater through class room programs and field trips in the watershed. DWA has an ongoing program that offers resources and presentations in schools. IWA has an ongoing outreach program that reaches school children in grades K-6. The CVRWMG recently launched a region-wide water conservation website that allows interested parties to learn who their water provider is, find tools and information about how to save water, and learn about applicable rebate programs. The website is available at www.cvwatercounts.org.
- **Water Efficient Landscaping Guide Book**. CVWD staff along with Scott Millard, one of California's leading desert landscape experts, published *Lush and Efficient: A Guide to Coachella Valley Landscaping* to provide Coachella Valley residents information on choosing desert plants and how to irrigate properly. DWA helped finance publication/distribution of the most recent

edition of *Lush & Efficient*. Other CVRWMG agencies also produce literature and web tools encouraging water conservation, use of desert plants for landscaping, etc.

- **Living Wisely.** MSWD funds the Living Wisely program in conjunction with the electric and gas utility to promote conservation through water and energy efficient in-home practices. MSWD also has an active program to partner with HOAs in identifying water conservation opportunities through plant selection and irrigation practices.
- **EYE Program**. The Environmental Youth Experience (EYE) Program is conducted on a regional basis with high school youth. Students gather in the fall to explore and identify projects that have conservation and environmental benefits but are combined with service to their communities. In the spring, the students gather again to report on their project successes and experiences. MSWD is a lead community partner in EYE Program's success.
- **Landscaper Certification Course**. CVWD has partnered with College of the Desert (COD) to develop a Landscaper Certification Course. Landscapers are now required to complete two free courses in order to renew their business license.
- **NPDES Public Outreach Program and Website.** The Riverside County Watershed Protection website includes outreach and practical content educating residents, businesses, schools and everyone in the watershed. The site includes news, resources, and clear and specific actions residents, businesses and schools can take to actively contribute to watershed protection.

Water and Culture

Water plays an important role in many historical and modern economic activities, including fishing, mining, agriculture, manufacturing, tourism, and recreation. Many water management professionals and other stakeholders are recognizing the importance of connecting water resource management strategies to the cultural considerations of their communities, and the Coachella Valley is no exception. Water resource managers in the region have long recognized the need to understand the water as a cultural resource for many communities in the area, such as the Native American tribal community, among others.

Several strategies for linking cultural considerations to water management identified by the *California Water Plan Update 2013* include:

- Establish an appointed preservation officer,
- Establish cultural resource management programs,
- Educate the public about the Surfrider Foundation, the Bolsa Chica $150 million settlement, Cadillac Desert, Mary Austin, Tahoe Blue, and Friends of the River,
- Educate children about how watersheds work,
- Expand inclusion and integration of traditional and indigenous practices and knowledge in resources management and planning processes and decisions,
- Education the public about resource stewardship,
- Centralize information on historical and cultural resources into a single database,
- Protect sensitive sites from vandalism,

- Investigate use of the General Planning Process to better integrate water and cultural considerations, and
- Identify efforts to implement early engagement and incorporation of culture.

Coachella Valley Efforts

- **Tribal Outreach and Coordination**: The CVRWG has had the goal of engaging the Coachella Valley's tribal governments in order to understand their water resources needs and collect their input throughout the IRWM/SWR planning process. The objective of such outreach is to make sure that the long-term implementation of the IRWM/SWR Plan is responsive to the issues voiced by tribal communities. Tribal representatives from six Native American tribes in the Coachella Valley were identified and contacted for participation. Individual meetings with tribal representatives during the preparation of the 2014 IRWM Plan Update were designed to inform the tribes on the current and future status of the Coachella Valley IRWM Program and request input for inclusion in the 2014 IRWM Plan. The Coachella Valley tribes are part of the Planning Partners and the CVRWMG encourages their continued participation in the IRWM Program and IRWM/SWR planning efforts. Please refer to *Chapter 7 Stakeholder Involvement, Section 7.6 Tribal Outreach and Coordination.*

Water-Dependent Recreation

Water-dependent recreation strategies are vital to ensuring that people can enjoy water recreation activities today and in the future. Maintaining and protecting water-dependent activities such as fishing, swimming, birding, boating, among many others is economically , environmentally, and socially beneficial as well as improving human health. Other potential benefits of water-dependent recreation strategies include:

- Providing visitors and residents a variety of fun activities and healthy outdoor activities,
- Refreshing and relaxing the mind and body,
- Providing a chance for exercise and relaxation, water-dependent recreation, and
- Increasing economic benefits through the creation of jobs, programs, and services surrounding the water recreation industries from both residents and visitors.

Several water-dependent strategies identified by the *California Water Plan Update 2013* include:

Lake Cahuilla's fishing and recreational activities are overseen by the County of Riverside.

- Using existing data and new surveys to determine recreational needs,
- Partnering with schools to provide drowning prevention programs primarily aiming at youth from urban and low-income families,
- Developing partnerships with universities to coordinate monitoring of public recreation use, equipment, and emerging water recreation trends,
- Developing a procedure to incorporate climate change assessments within all infrastructure planning, budgeting, and project development,
- Researching, identifying, and mitigating impacts of stream flows that prevent Native Americans from participating in their traditional cultural activities, and
- Developing invasive species preventative measures.

Coachella Valley Efforts

- **Lake Cahuilla**. There are various recreational opportunities available to residents and visitors in and/or around Lake Cahuilla, these include: boating, water sports, fishing, horseback riding, hiking, camping, and picnicking.
- **Whitewater Preserve**. Whitewater Preserve is a 2,851 acres parcel owned by the Wildlands Conservancy which features the Whitewater/Mission Creek drainage. The trailhead is 4.5 miles from Interstate 10 on Whitewater Canyon Road.
- **Hot Mineral Water.** The Desert Hot Springs Subbasin provides highly desirable hot mineral water that fuels the Desert Hot Springs spa industry and about 50 recreational vehicle (RV)/mobile home parks in the Desert Crest area. MSWD supports the local Hoteliers Association's efforts to promote and enjoy the hot water resource. The population served by the mobile home parks constitutes a DAC and is characterized by fixed incomes, compromised health, and advanced age. Adding to the complexity is the transient, seasonal nature of the population. MSWD's outreach to these communities includes public information campaigns and efforts to benefit the communities whenever possible as land use projects are developed.

8.4.8 Other Strategies

The *California Water Plan Update 2013* and the *Proposition 84 and Proposition 1E IRWM Guidelines* (DWR 2010) identified other potential RMS that can aid in meeting water management goals and objectives however these strategies are currently limited in their capacity for addressing long-term regional water

planning needs. These strategies consist of crop idling for water transfers, dewvaporation, fog collection, irrigated land retirement, rainfed agriculture, and waterbag transport. Due to their limited ability to address Coachella Valley's IRWM/SWR Plan goals and objectives, these RMS were not selected for inclusion in the Coachella Valley IRWM/SWR Plan.

Crop Idling for Water Transfers

Crop idling is a strategy that removes lands from irrigation and makes water available for transfer. Several of the potential benefits from implementing this strategy includes: enhancing water supplier reliability by making water available for redistribution, enhancing water quality, protecting and restoring fish and wildlife, and helping farm communities (as well as urban areas) infuse money into the local economy while increasing the reliability of water supply for urban consumers.

Several crop idling strategies identified by the *California Water Plan Update 2013* includes:

- Developing necessary coordination structures to satisfy agency policy requirements,
- Consulting with agencies and entities that will be leading crop idling programs, and
- Understanding the local community impact and third-party impacts to develop and implement necessary actions for maintaining economic stability of local communities and mitigating socioeconomic impacts.

Coachella Valley Efforts

With a crop production value in 2010 of over $575 million dollars, which generates more than an equal amount of secondary economic activity, agriculture is a significant economic driver is the Coachella Valley. Almost all crops grown yield a value in excess of $1,000 per acre, and many yield between $10,000 and $20,000 per acre. Because few low value crops are grown, crop idling is not a feasible RMS for the Region.

Dewvaporation or Atmospheric Pressure Desalination

The dewvaporation or atmospheric pressure desalination strategy would heat brackish water until deposits of fresh water as dew are collected from the opposite side of a heat transfer wall. The heat sources for this strategy can be derived from multiple sources (i.e. fuel, solar, waste heat) and the energy required for evaporation can be supplied by the energy released from the dew formation.

Though dewvaporation technology is still being developed in California, Arizona State University (ASU) currently has a dewvaporation pilot project underway. The potential benefits of this technology include the ability to provide small amounts of water in remote locations (basic tests have produced up to 150 gallons per day) and the ability to reclaim salt water at relatively low costs.

Coachella Valley Efforts

Dewvaporation, or atmospheric pressure desalination is not currently being planned in the Region because it is not a feasible RMS for the Coachella Valley. The CVWD Desalination Pilot Project, which was completed in 2008 under a grant from DWR's Proposition 50 Water Desalination Proposal, investigated the feasibility of dewvaporation and reverse osmosis for desalination of agricultural drainage runoff and

brackish groundwater in the region. Reverse osmosis was the chosen treatment technology to meet the current water quality goals.

Fog Collection

Fog collection is a form of precipitation enhancement that has yet to be used in California, though it does occur naturally along coastal vegetation. Though there is interest to use this strategy for increasing domestic water supplies in dry areas, such as California desert regions, this strategy is more appropriate for regions near the ocean.

The potential benefits of fog collection primarily include increasing water supplies. For example, a fog collection project in Chile yielded about 2,800 gallons per day from about 37,700 square feet of collection net. However, this strategy produces limited volumes of water supply.

Coachella Valley Efforts

Due to climactic conditions in Coachella Valley, which results in negligible amounts of fog, fog collection is not currently being planned or explored in the Region.

Irrigated Land Retirement

Irrigated land retirement is the removal of farmland from irrigated agriculture and increasing water availability for redistribution for other uses. The total water that can be made available for each retired acre can be 2 to 3.5 AFY assuming lands receive their water allocation. The potential benefits from retiring irrigated land includes: enhancing water supply reliability, enhancing water quality, protecting and restoring fish and wildlife resources, reducing drainage volume and associated costs due to drainage disposal.

Strategies for facilitating irrigated land retirement programs identified by the *California Water Plan Update 2013* include:

- Evaluating and ensuring urban areas receiving water made available from land retirement have exhausted all means of water conservation,
- Making all land retirement programs voluntary,
- Studying local community and third-party impacts from land retirement such as from reduced agricultural production inputs, reduced farm income, and habitat restoration, and
- Developing and implementing necessary actions for maintaining the economic stability of local communities and mitigating socioeconomic impacts.

Coachella Valley Efforts

Irrigated land retirement is not currently being planned or explored in the Coachella Valley. As explained above with crop idling, high agricultural productivity, and resulting economic outputs from the agricultural industry in Coachella Valley make this RMS infeasible for the Region.

Rainfed Agriculture

The rainfed agriculture strategy is when all crop consumptive water use is provided directly by rainfall on a real time basis. Several of the potential benefits associated to rainfed agriculture include increases in water supply (though limited), improved post-harvest/pre-planting soil management for winter crops, and decrease in soil erosion due to increases in soil moisture. However, due to the unpredictability of rainfall frequency, duration, and amount, this strategy is highly uncertain and risky. Additionally, the quantification of any potential water savings from rainfed agriculture, though small, will not be possible due to lack of available information.

Strategies for implementing rainfed agriculture programs identified by the *California Water Plan Update 2013* include:

- Developing new technologies, management, and efficient water management practices for rainfed agriculture,
- Providing technical and financial assistance for implementing rainfed agriculture technologies and management practices, and
- Developing cooperative efforts to link rainfed agriculture runoff and water banking and conjunctive use activities and groundwater recharge.

Coachella Valley Efforts

With an average rainfall of less than 4-inches per year, and some years having no rainfall, agriculture is not possible without irrigation. Rainfed agriculture is not currently being planned or explored in the Coachella Valley.

Waterbag Transport/Storage Technology

The waterbag transport/storage technology involves diverting water in areas that have unallocated freshwater supplies, storing the water in large inflatable bladders, and towing them to an alternate coastal region. Currently, this strategy is not used in California, though there has been various proposal for this technology worldwide. Several of the potential benefits associated to waterbag transport/storage technology includes: improvements in drought preparedness and water quality, reductions in groundwater overdraft, and provides environmental, energy and water supply benefits.

Coachella Valley Efforts

The Coachella Valley is an inland valley surrounded by mountains. Because the area lacks access to an ocean port, waterbag transport/storage technology is not currently being planned or explored in the Coachella Valley.

8.5 Adapting Resource Management Strategies to Climate Change

This section includes an evaluation of the adaptability of water management systems in the region to climate change.

The variability of location, timing, amount, and form of precipitation in California, suggested as a result of climate change, could present some uncertainty as to the availability of future delivery and delivery capabilities of the Coachella Valley's SWP allotments. DWR has determined that the Sierra Nevada Mountains snowpack is shrinking and that melting is occurring earlier, shifting runoff from the spring further into the winter and causing winter flooding. Changes in precipitation patterns and quantity throughout the Southwest United States may also impact potential water supply availability from the Colorado River. Such changes in local conditions may impact local water quality, flooding, local supplies, and resources such as habitat and recreation. Concerns about climate uncertainty have resulted in the need to adapt existing flood management, water quality management, resources stewardship practices, and water supply systems in response to changing conditions.

The *Climate Change Handbook for Regional Water Planning* (DWR 2011) is intended to help local agencies, cities, and counties include climate change as part of their water resources planning. As part of the suggested process, the *Climate Change Handbook* recommends regions identify strategies that can be used to help them to adapt to climate change as well as mitigate greenhouse gas (GHG) emissions. The *2009 California Climate Adaptation Strategy Handbook* defines climate change adaptation as adjustments to the natural or human systems due to actual or expected climate changes in an effort to minimize harm or take advantage of beneficial opportunities (CNRA 2009), while climate change mitigation aims at directly reducing the GHG emissions that cause climate change through energy efficiency, emissions reduction, and/or carbon sequestration

In addition to the RMS discussed above, strategies were identified through the review of relevant climate change related documents. These documents include:

- *Managing an Uncertain Future* (DWR 2008)
- *Climate Change Scoping Plan* (CARB 2006)
- *Climate Action Team Biennial Report* (CalEPA 2010)
- *Resolution on Sea Level Rise* (OPC 2011)
- *California Climate Extremes Workshop Report* (Scripps 2011)

The identified strategies were screened relative to each strategy's potential for addressing the climate change vulnerability issues and mitigating GHG emissions. The prioritization exercised undertaken regarding the strategies is described in *Chapter 3 Issues and Needs, Section 3.2.3 Vulnerability Analysis.* **Table 8-3** presents these strategies, and identifies the following information:

- Is the strategy a "no regret" strategy?
- Does the strategy help to adapt to the vulnerability issues identified and evaluated in *Section 3.2.3 Vulnerability Analysis* of *Chapter 3 Issues and Needs*?
- Does the strategy help the Region to mitigate GHGs?

By definition, "no regret" strategies are those strategies that, if implemented, would provide benefits today regardless of potential climate change impacts, but would also reduce the Region's vulnerability to potential future climate change impacts. "No regret" strategies are desirable for immediate implementation as they will provide benefits even under the uncertainty of climate change projections. Those strategies determined not to be appropriate for the region, as discussed in *Section 8.2 Resource Management Strategies*, are not included in **Table 8-3**.

Table 8-3: Climate Change Management Strategies

	Implemented in Region?	No regret strategy?	Help to adapt to climate change vulnerabilities?	Help to mitigate GHGs?
Reduce Water Demand				
Agricultural Water Use Efficiency	Yes	Yes	Yes	Yes
Urban Water Use Efficiency	Yes	Yes	Yes	Yes
Water Meter Installation[1]	Yes	Yes	Yes	Yes
Improve Operational Efficiency and Transfers				
Conveyance- Delta	Yes	Yes	Yes	Yes
Conveyance- Regional/Local	Yes	Yes	Yes	Yes
System Reoperation	Yes	Yes	Yes	Yes
Water Transfers	Yes	Yes	Yes	
Conduct emissions inventories[1]	Yes	Yes		Yes
Increase use of renewable energy sources[1]	Yes			Yes
Localized (or decentralized) water/ wastewater treatment[1]	No			Yes
Shift water use to off-peak hours[1]	No	Yes	Yes	
Optimize sewer systems[1]	Yes		Yes	
Increase Water Supply				
Conjunctive Management and Groundwater Storage (Including Stormwater Retention Basins)	Yes	Yes	Yes	
Desalination	Yes		Yes	
Precipitation Enhancement	Yes		Yes	Yes
Recycled Municipal Water	Yes	Yes	Yes	Yes
Surface Storage- CALFED	Yes		Yes	Yes
Surface Storage- Regional/Local	Yes		Yes	Yes
Improve Water Quality				
Drinking Water Treatment and Distribution	Yes	Yes	Yes	

	Implemented in Region?	No regret strategy?	Help to adapt to climate change vulnerabilities?	Help to mitigate GHGs?
Groundwater Remediation/Aquifer Remediation	Yes	Yes	Yes	
Matching Quality to Use	Yes	Yes	Yes	Yes
Pollution Prevention	Yes	Yes	Yes	Yes
Salt and Salinity Management	Yes	Yes	Yes	Yes
Urban Runoff Management[2]	Yes	Yes	Yes	Yes
Improve Flood Management				
Flood Management[2]	Yes	Yes	Yes	
Integrated Flood Management[2]	No	Yes	Yes	
Protective Infrastructure[1]	Yes		Yes	
Sediment Management[1]	No		Yes	
Practice Resources Stewardship				
Agricultural Lands Stewardship	Yes	Yes	Yes	Yes
Ecosystem Restoration	Yes	Yes	Yes	Yes
Forest Management	Yes	Yes	Yes	Yes
Recharge Area Protection	Yes	Yes	Yes	Yes
Watershed Management	Yes	Yes	Yes	Yes
People & Water				
Economic Incentives (Loans, Grants and Water Pricing)	Yes	Yes	Yes	Yes
Outreach and Engagement	Yes	Yes	Yes	
Water and Culture	Yes	Yes		
Water-Dependent Recreation	Yes	Yes		
Other Strategies				
Crop idling, dewvaporation, fog collection, irrigated land retirement, rainfed agriculture, and waterbag transport	No	No	No	No

1. Indicates an additional strategy (not an RMS identified in the *2013 California Water Plan Update*) that was considered as a potential additional strategy that could be implemented to address climate change
2. Stormwater retention is included in the Urban Runoff Management, Flood Management and Integrated Flood Management plans.

The set of climate change strategies listed in **Table 8-3** are those that will best help the Region in responding to and reducing potential climate change vulnerabilities given current knowledge. Further, the climate

change vulnerability analysis upon which these strategies were based was vetted through the stakeholders during a meeting of the Planning Partners held on December 13, 2012 (refer to *Section 3.2.3 Vulnerability Analysis*).

Several of these climate change strategies address reducing energy consumption, even if that is not explicitly stated. Strategies such as urban water use efficiency and matching quality to use both reduce energy consumption embedded in water use and water treatment. The Region has been implementing water use efficiency strategies, and in doing so, has significantly reduced the overall gallons per capita per day (gpcd) throughout the Region. As discussed in Section 2.4.1 Water Supply, CVWD and DWA import SWP and Colorado River water, which is an energy intensive process. Reducing urban water use reduces the amount of imported water needed, and therefore, reduces energy consumption and ultimately, greenhouse gases.

When implementing these strategies, it will be necessary to develop performance measures or metrics to assess the effectiveness of a project in meeting the Region's goals. Though specific measures and metrics will be defined according a specific project or portfolio of projects, **Table 8-4** provides examples of how these measures or metrics might be defined according to general water resource perspective. It should be noted that several of the strategies may apply to the Region's objectives (see **Table 8-2**), and not solely to adapting to and/or mitigating climate change. Without specific metrics, it would be difficult to assess the effectiveness of strategies in responding to climate change. Moreover, some of the strategies implemented to adapt to climate change are "good planning" for future vulnerabilities and may not be immediately measurable. Many of the effects of climate change are anticipated past the planning horizon of the Coachella Valley IRWM/SWR Plan. To respond to this uncertainty, the Region should update its climate change analysis during each planning cycle and implement adaptive management measures to be discussed in a later section of this IRWM/SWR Plan.

Table 8-4: Sample Climate Change Strategy Performance Measures/Metrics

Strategy Category	Sample Performance Measures/Metrics
Reduce Water Demand	• Average (annual) water demand reduction • Peak (seasonal, monthly) water demand reduction
Improve Operational Efficiency	• Additional supply • Supply reliability
Increase Water Supply	• Additional supply • Potable demand offset • Supply reliability
Improve Water Quality	• Salt line migration • Stream temperature • Dissolved oxygen • Turbidity • Pollutant concentrations
Improve Flood Management	• Acres of a certain habitat or floodplain function restored/protected • Volume of natural flood storage provided • Storm return period used for planning • Expected damage resulting for a certain return period storm
Practice Resource Stewardship	• Presence/absence of key indicator species • Acres of a certain habitat or floodplain function restored/protected • Volume of natural flood storage provided • Acres of recharge area protected
People & Water	• Amount of grant or loan money available or disbursed • Public presence at various stakeholder meetings

Page intentionally left blank.

9 Project Evaluation and Prioritization

Integrated Regional Water Management (IRWM) Standards*: This chapter addresses the* ***Project Selection Process Standard*** *which ensures the process used for submitting, reviewing, and selecting projects is documented and understandable for regional stakeholders and the public.*

Stormwater Resource Plan (SWRP) Requirements: *This chapter describes the* ***Quantitative Methods*** *used assess the multiple benefits of stormwater project in the planning area, as well as describes the* ***Identification and Prioritization of Multiple Benefit Projects*** *according to the SWRP requirements.*

In order to develop and identify water resources management projects for implementation, the Coachella Valley Regional Water Management Group (CVRWMG) has provided technical support and outreach to project proponents and has released several open "Call for Projects" for consideration in the IRWM/Stormwater Resource (SWR) Plan and grant applications. Organizations from across the Coachella Valley IRWM Region (Region) submitted projects addressing a wide variety of water supply, water quality, flood management, and habitat protection needs. In 2018, 40 additional projects were submitted to the database to address local water resources issues, including 23 stormwater projects and 40 IRWM projects. This brings the overall total number of project submissions to 115 projects. While all of these projects are considered to be important to effectively manage water resources in the Region, a prioritization process has been established for IRWM and a ranking process for stormwater projects to help manage the project list and to determine which projects best meet regional needs. The prioritization processes will allow a ranking of projects for implementation using a transparent and defensible method and will encourage the development of projects that are best suited for meeting the identified needs of the Coachella Valley. Although stormwater projects are ranked per California Water Code requirements, project ranking does not determine whether that project can move forward to be considered for funding as it does with the IRWM prioritization process. These separate prioritization and ranking processes are further described in the sections below.

9.1 IRWM Regional Priorities

As described in *Chapter 6 Objectives*, the following regional goals and objectives are priorities for implementation in the Coachella Valley:

- Optimize Water Supply Reliability (Corresponding to Goal 1, including Objectives A-D)
- Protect or Improve Water Quality (Corresponding to Goal 2, including Objective E-F)
- Manage Flood Risks (Objective H)
- Optimize Conjunctive Use of Surface and Groundwater Supplies (Objective I)
- Directly Benefit Disadvantaged Communities (Objective L)

Implementation priorities are those actions necessary to address immediate areas of need that have been identified through CVRWMG and Planning Partner meetings and public workshops. Meeting these priorities will continue to move implementation of the IRWM/SWR Plan forward and ensure that the IRWM/SWR Plan is representative of the Region's needs and responsive to key regional issues. The CVRWMG, with Planning Partners guidance, will be responsible for IRWM/SWR Plan implementation responsibilities.

In September 2010, the CVRWMG and Planning Partners identified seven short-term priorities for the Coachella Valley IRWM Program. These short-term priorities were intended to direct the activities of the local IRWM Program. These implementation actions will move the Region toward more sustainable water management and will help the CVRWMG fully characterize and address critical water management needs.

Near-term IRWM/SWR Plan implementation will focus on the regional priorities identified through this facilitated consensus-based process. These regional priorities provide an overall direction for the IRWM Program and will continue to be addressed through planning and implementation projects or other program activities.

Priority 1: Address Water Quality in DACs

During the issues identification process with regional stakeholders, critical drinking water quality issues were raised by eastern Coachella Valley disadvantaged communities (DACs). The CVRWMG is committed to developing a more thorough understanding of and identifying solutions for the groundwater quality issues in the Region's DACs. Preparation of the *DAC Groundwater Quality Study,* as part of the previous 2014 IRWM Plan Update (refer to *Chapter 10 Agency Coordination* for more information), included a technical evaluation to begin exploring these issues right away. Tackling this critical need head-on helps to address two of the California Department of Water Resources' (DWR's) Statewide Priorities: "Protect Surface Water and Groundwater Quality" and "Ensure Equitable Distribution of Benefits".

The Region's *Proposition 84-Round 1 Implementation Grant* funded a short-term arsenic treatment project to ensure that known mobile home communities who currently experience arsenic contamination are provided clean, safe drinking water as soon as possible. The Region's *Proposition 84-Round 2 Implementation Grant Proposal* included planning and design support for extension of municipal water supplies to an economically disadvantaged tribal community in the eastern Coachella Valley. The Region's *Proposition 84-Round 4 Implementation Grant* funded a septic-to-sewer project for an economically disadvantaged tribal community in the eastern Coachella Valley that would provide a long-term, permanent solution to the existing offsite *E. coli* water quality issues associated with the ponding of untreated water from failing septic systems. The Region's *Proposition 1- Disadvantages Community Involvement (DACI) Grant funded* planning and design support for a chromium-6 treatment design project within in the City of Coachella to provide clean, safe drinking water within its service area.

Priority 2: Manage Flood Risk

Due to the Coachella Valley's susceptibility to flash flooding, the CVRWMG is committed to identifying and improving regional participation in flood protection programs. Preparation of the *Integrated Flood Management Study*, as part of the previous 2014 IRWM Plan Update (refer to *Chapter 10 Agency Coordination* for more information), specifically addressed local flooding risks. This planning effort addressed emergency preparedness, flood protection, floodplain ecosystems, and low impact development techniques that comprise DWR's Statewide Priority "Practice Integrated Flood Management".

Priority 3: Improve Relationships with Tribes

Establishing new relationships between the IRWM Program and local tribes is intended to improve regional groundwater management. As demonstrated by the extensive one-on-one outreach conducted to Native American tribes by the IRWM Program, the CVRWMG is committed to using the IRWM Program as a forum for coordination and collaboration with the Coachella Valley's tribes. Through this forum, the CVRWMG has also coordinated with the local tribes to provide information on the Stormwater Grant Program (SWGP). This consultation will help the Region attain DWR's Statewide Priority "Improve Tribal Water and Natural Resources". For more information about IRWM/SWR coordination with Native American Tribes, refer to *Chapter 5 Tribal Water Resources.*

Priority 4: Address Emerging Regulations

Changes in the regulatory environment – including the passage of Assembly Bill 1420 (AB 1420) in 2017and Senate Bill X7-6 (SBX7-6) in 2009, Senate Bill 985 (SB 985), the State Board's Recycled Water Policy in 2009, ongoing Total Maximum Daily Load (TMDL) efforts, Sustainable Groundwater Management Act (SGMA) in 2014, and Stormwater Resource Planning Act in 2014– have and will affect water management activities of the CVRWMG. The CVRWMG is committed to working together to address common interests and solutions to these new regulations. The previous 2014 IRWM Plan Update included development of a planning strategy for the Salt and Nutrient Management Plans (SNMPs) required by the Recycled Water Policy. The SNMP Workplan is included as **Appendix VI-G** and was used to solicit a consultant for preparation of the plan. The SNMP was completed by Coachella Valley Water District (CVWD), Desert Water Agency (DWA), and Indio Water Authority (IWA) in June 2015. DWR's Statewide Priority "Protection Surface Water and Groundwater Quality" specifically promotes salt and nutrient planning as a component of an IRWM Plan. Task 2-4 in the *Proposition 84 Planning Grant Proposal* included development of a monitoring strategy for Groundwater Elevation Monitoring in compliance with SBX7-6 as well as an analysis of groundwater strategies that could be implemented to meet regional needs pertaining to groundwater management (refer to *Chapter 10 Agency Coordination* for more information).

The 2014 SGMA required the formation of Groundwater Sustainability Agencies (GSAs) by June 30, 2017 in medium- and high-priority basins, as designated by DWR, and to develop Groundwater Sustainability Plans (GSPs). The GSA is responsible for developing and implementing a GSP to meet sustainability goals of the basin to ensure that it is operated within its sustainable yield, without causing undesirable results. CVWD, CWA, DWA, IWA and MSWD submitted application materials to become GSAs for different subbasins of the Coachella Valley Groundwater Basin (see **Figure 10-2** in *Chapter 10 Agency Coordination*).

The Stormwater Resource Planning Act requires the development of a SWRP as a condition of receiving funds for stormwater or dry weather runoff projects from any bond approved by voters after January 2014, which includes Proposition 1. This IRWM/SWR Plan serves as a SWRP functional equivalent to satisfy this requirement.

Priority 5: Encourage Septic to Sewer Conversion

Because of the potential impact that septic systems may have on groundwater quality in the Coachella Valley, the CVRWMG is committed to implementing septic-to-sewer conversion projects through the IRWM Program. Various conversion projects throughout the Coachella Valley may be coordinated under a larger, more efficient program to address DWR's Statewide Priority "Protect Surface and Groundwater Quality". The Region's *Proposition 84-Round 1 Implementation Grant* funded several septic-to-sewer

projects that address critical groundwater quality issues related to nitrate contamination. The *Proposition 84-Round 2 and Round 4 Implementation Grant Proposals* each included two septic-to-sewer conversion projects to protect groundwater quality and public health and safety three in the eastern Coachella Valley and one in the western Coachella Valley.

Priority 6: Address Reduced Reliability

Developing a better understanding of the State's State Water Project (SWP) Allotment priorities and issues affecting reliability will help the Region coordinate its efforts and resources towards improving future supply reliability. In the meantime, the CVRWMG is committed to encouraging water conservation and source substitution projects to reduce additional future demand on the imported water supply. For example, the CVRWMG recognizes the importance of expanding the Region's recycled water systems to offset potable water demand. With this emphasis on water conservation and recycling, the CVRWMG will implement DWR's Statewide Priority "Drought Preparedness" within the Coachella Valley. The Region's *Proposition 84-Round 1 Implementation Grant* funded a regional water conservation program to address the potential for reduced reliability and to achieve compliance with the State's 20x2020 Plan. The Region's *Proposition 84-Round 2 Implementation Grant Proposal* included expansion of the Coachella Valley's non-potable water distribution system. The Region's *Proposition 84-Round 3 (Drought Round) Implementation Grant* funded the Regional Turf Reduction Program to reduce irrigation demands for turf grass. The Region's *Proposition 84-Round 4 Implementation Grant Proposal* included additional funding for the Regional Turf Reduction Program and the IWA Recycled Water Project, which further offload demand for imported water and increase local supply reliability.

Priority 7: Create the Data Management System

The CVRWMG created a Data Management System (DMS) that will help to manage water resources data and project performance through the IRWM Program website (www.cvrwmg.org) and online project database to provide links to publicly available datasets and water-related resources for the Region's stakeholders. Refer to *Chapter 11 Framework for Implementation, Section 11.3 Data Management* for additional detail on the proposed DMS. An additional DMS or modifications to the existing DMS that incorporates water-related information through a different format than the current DMS has been recommended as a potential IRWM project and is currently included within the online project database. This potential project has not historically scored well within the Region's stakeholder-vetted project scoring process (see below for more information) but will continue to be considered as a potential IRWM project for future implementation.

Implementation of these priorities will help to ensure that IRWM/SWR Plan implementation proceeds in a coordinated manner, the benefits of IRWM/SWR Plan implementation extend throughout the entire Region, and the Region makes inroads toward achieving the goals of this IRWM/SWR Plan.

9.2 IRWM Project Selection Process

This section describes the IRWM Project Selection Process, which includes three components per the 2016 IRWM Guidelines: procedures for submitting a project to the IRWM/SWR Plan; procedures for review of projects to implement the IRWM/SWR Plan; and procedures for communicating the list(s) of selected projects.

Throughout the IRWM/SWR planning process, the CVRWMG has engaged stakeholders across multiple areas of water resources management to identify priorities for the Region and to prioritize projects for implementation. As described below, the Planning Partners played an integral role in reviewing and selecting projects that best achieve the regional goals and objectives. This section presents the process for prioritization and selection of IRWM projects, including:

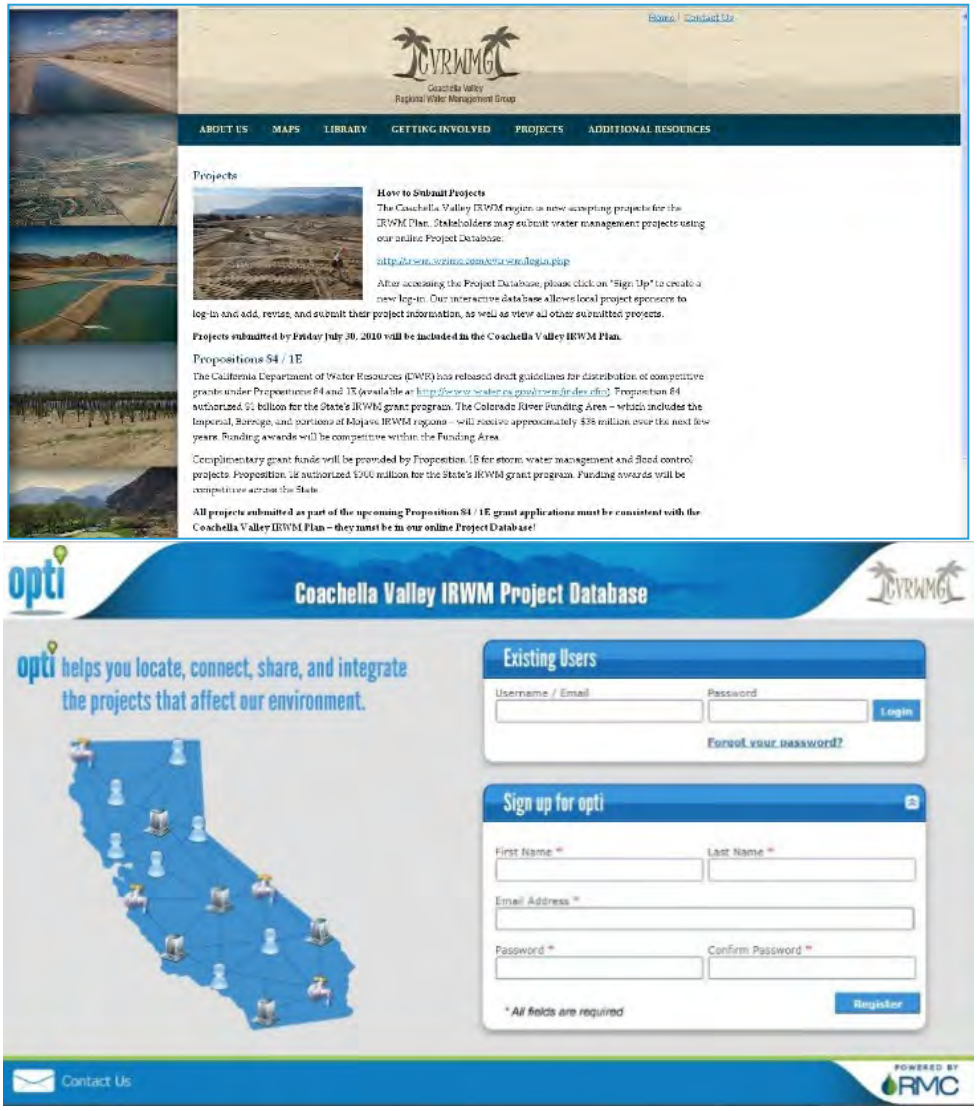
- Procedures for submitting projects to the IRWM/SWR Plan,
- Process by which CVRWMG provides technical support to interested parties,
- Procedures for reviewing and prioritizing projects submitted to the IRWM/SWR Plan, and
- Procedures for selecting and communicating the final IRWM project list.

9.2.1 Project Submittal Process

The CVRWMG and Planning Partners originally developed the project submittal process in May 2010. This process involves three major steps: solicitation, prioritization, and selection. Solicitation can be described as a "Call for Projects" that helps to meet the Region's established goals and objectives. The objective of this step is to compile a comprehensive list of water-related projects for the Region that meets the issues, needs, and objectives identified in the IRWM/SWR Plan or by local stakeholders. Any individual(s) that represent a public agency or non-profit organization with common water interests and needs can submit a project to the IRWM Program or the SWGP via the IRWM website (www.cvrwmg.org). An online project database was developed to assist in the management of project information (http://irwm.rmcwater.com/cv/. The database provides stakeholders with access to project information based on username/login functionality. Stakeholders can access the online project database from the project website, enter and edit their project information, and submit the projects for consideration in the IRWM/SWR Plan.

At a minimum, each project submitter must provide basic information about their project, including a project description, contribution to IRWM/SWR objectives (refer to *Chapter 6 Objectives*), contribution to identified Resource Management Strategies (refer to *Chapter 8 Resource Management Strategies*) water-related benefits, estimated costs, status, and project details. The project submitter also marks whether the project is being submitted as a SWRP project and/or an IRWM project. Those projects being submitted to the SWRP have additional information to fill out as described in *Section 9.5.2 Stormwater Multiple Benefits and Associated Metrics*. The IRWM/SWR project database allows this project information to be reviewed, organized, and regularly updated by the CVRWMG and project proponents. Access to project summaries is available to all interested parties with the intention of improving transparency. **Figure 9-1** includes screenshots of the CVRWMG projects website and the online project database. Because the project database is an online web tool, interested parties can view projects and find out information about projects that were submitted to the online database at any time; projects that are included in the IRWM/SWR project database are not managed or deleted by the CVRWMG, but rather will remain in the online database until edited or removed by project sponsors.

Figure 9-1: CVRWMG Website and Project Database



The CVRWMG sends announcements to invite stakeholders to Planning Partners meetings to conduct regional coordination and to prepare for project solicitation periods and upcoming grant applications. During these meetings, the CVRWMG partners extended an offer to all project submitters to assist with input of their projects. Such assistance included technical assistance with project development and review of required project selection criteria as well as technical assistance necessary to properly enter projects into the online project database.

An open house is held for DAC representatives and other interested stakeholders during each project solicitation, with computers available to help project proponents in entering project information into the database. The open houses were held on July 28, 2010 and October 11, 2012 for Rounds 1 and 2 of Proposition 84 Implementation Grant project solicitation, respectively. The open houses are intended to be a working session with CVRWMG members helping the DAC representatives to understand and complete

the online form. Access to the online project submittal forms can also be made available to those who do not have computer access. In addition, the CVRWMG may provide technical support to DAC and other representatives who are unable to develop project materials on their own, in order to assist entities in submitting thorough project information.

Notices announcing the "Call for Projects" and the open houses are sent via email, advertisements on the website, and other media sources in order to reach all possible interested parties. A deadline for project submittals is established up front and made widely available to stakeholders, in order to receive, screen, and rank all projects for inclusion within the IRWM/SWR Plan. The deadline was set for July 2010, October 2012, June 2014, and May 2016 for Proposition 84-Rounds 1, 2, 3, and 4, respectively.

For the Proposition 1-Round 1 Implementation Grant process (anticipated in late 2018, early 2019) the CVRWMG will coordinate with the Riverside County Department of Environmental Health (DEH), the Regional Water Quality Control Board (RWQCB), and other applicable regulatory agencies, as well as the Planning Partners, to send notices of the "Call for Projects" to applicable parties that can potentially submit projects that will address critical water quality and wastewater needs of DACs. Such parties may include mobile home park owners or residents with known drinking water quality issues (drinking water quality that does not meet regulatory standards), or those that have been cited for significant wastewater (septic) issues. Further, for the Colorado River Funding Area (CRFA) DAC Needs Assessment development process, the CVRWMG will re-send the findings from the DAC Outreach Program projects (refer to *Chapter 4 Disadvantaged Communities* for more information) to all IRWM stakeholders. The project findings include example work plans, budgets, and schedules for onsite drinking water treatment and septic system rehabilitation projects and provide a necessary first-step for potential DAC project proponents to develop projects that will potentially be viable for Proposition 1 funding. The DAC Outreach Program will serve as a starting point for development of the CRFA DAC Needs Assessment, which is anticipated to be complete in December 2020.

In order to facilitate review and organization of the project submittals, the IRWM/SWR project database provides the option of printing or exporting a detailed list of all projects submitted. The CVRWMG uses this project list in discussions of submitted projects with the Planning Partners and other stakeholders.

The online project database is open at all times for receipt of new implementation projects as well as editing and revision of current implementation projects. As new funding opportunities arise, the CVRWMG will issue a new "Call for Projects" with a deadline appropriate for that funding application. Project concepts, ideas, and/or needs were accepted into the project submission process in order to identify needs within the Region; however, these types of submittals were not considered for IRWM-related grant funding.

9.2.2 IRWM Project Review and Prioritization Process

After the solicitation deadline, IRWM projects submitted through the open "Call for Projects" are reviewed, ranked, and prioritized using a two-step screening and scoring approach. **Figure 9-2** below illustrates the overall process for screening of projects for the IRWM Program.

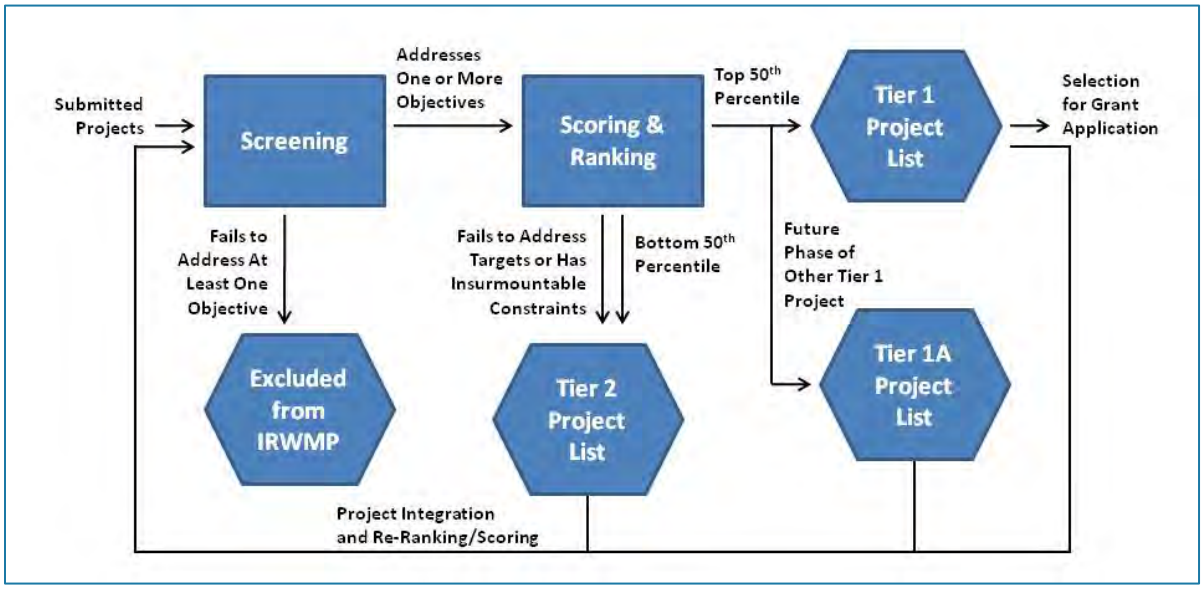
As shown in this **Figure 9-2,** projects are first evaluated for consistency with the regional objectives. Projects that do not meet any regional objectives were excluded from the IRWM/SWR Plan. Projects that are found to meet at least one objective pass the screening process and are moved on to the next step of the project review process: scoring and ranking.

To evaluate and prioritize projects as part of the IRWM planning process, the scoring and ranking process takes into account three fundamental components:

- Principles of IRWM planning,
- Priorities of the Region,
- Feasibility of projects to proceed.

The relative priority of each criterion is established by its ability to contribute to the overall goals and objectives established for the Region as illustrated in **Table 9-1**. Scoring for each submitted project is based on the responses provided in the online project database. In addition, the CVRWMG has a third-party (consultant) review each project individually for accuracy before they are ranked within the online project database. This ensures that appropriate credit is taken for contribution to regional goals and objectives, as well as other scoring criteria.

Figure 9-2: Prioritization Process Overview



Through a consensus process conducted in 2010, the CVRWMG and Planning Partners established the relative importance of each of these criteria. The approach to scoring projects and the relative importance of each criterion is presented in **Table 9-2.** In 2013, additional input was solicited from the Planning Partners to determine if the objective prioritization determined in 2010 was still applicable given changes that have occurred since 2010. That process, explained in detail in *Chapter 6 Objectives,* resulted in the addition of one criterion to the project scoring process (maximizes stakeholder involvement and stewardship in water resource management). The objective prioritization was not revised during this 2018 IRWM/SWR Plan Update.

Based on stakeholder input from 2010 and 2013, project scoring was developed to identify projects that:

- Address multiple IRWM Plan objectives,
- Integrate multiple resource management strategies,
- Address a Statewide Priority,
- Link to other projects,

- Involve more than one partner,
- Optimize water supply reliability,
- Protect or improve water quality,
- Manage flood risks,
- Optimize conjunctive use of surface and groundwater supplies,
- Directly benefit disadvantaged communities,
- Maximize stakeholder involvement and stewardship in water resource management, and
- Are identified in existing plans.

Each project is evaluated with respect to the criteria presented in **Table 9-2.** Based on the outcome of this evaluation, each project is assigned a score for each criterion for a total maximum score of 200. Projects are then ranked with the highest-scoring project ranked by number one. The top 50th percentile of projects (i.e., all project above the median) are considered Tier 1 projects that strongly contribute to the attainment of regional goals and objectives. Further, all future phases of Tier 1 projects are considered Tier 1A, such that only the ready-to-proceed Tier 1 projects are identified as regional priorities. The bottom 50th percentile (i.e., all projects below the median) are considered Tier 2 projects that are necessary to manage water in the Region, but not considered priorities under IRWM planning.

Tier 1 IRWM projects listed within the online project database will be moved forward for consideration in various IRWM funding applications.

Following project scoring and ranking, the CVRWMG conducts a review of the complete list of submitted projects and scores to facilitate the pairing of similar projects to fulfill the integration requirements of the IRWM/SWR Plan (please see *Chapter 8 Resource Management Strategies, Section 8.1 IRWM/ Stormwater Integration Approach* for a more detailed explanation of integration). The CVRWMG agrees that project integration and selection should occur with near-term regional and agency-wide benefits in mind. The focus of this IRWM/SWR Plan is to identify and address immediate needs that benefit the Coachella Valley.

After much discussion, several integration opportunities among the submitted projects are generally identified. The opportunities for greater project efficiencies are highlighted and communicated back to the project sponsors. The CVRWMG notes that not all prioritized projects will be regional in scope; solutions could entail grouping projects into 'packages' or prioritizing individual projects based on critical water supply or water quality needs. Integration suggestions made by the six CVRWMG agencies at the meeting are transmitted to the project proponents for consideration.

The CVRWMG then identifies a "short list" of top ranked projects from the complete Tier 1 list to be further considered and assessed. Those project sponsors are invited to join the CVRWMG for an informal "interview" where they describe their project and its benefits to the Region, as well as answer any questions from the CVRWMG that arose during the project scoring and ranking process. This interview step was added into the project selection process during the Proposition 84-Round 2 solicitation in 2012, so that the selection decision was based on better information than simply the online forms. The interviews for the Rounds 2, 3, and 4 cycles were held on December 6, 2012, June 10, 2014, and June 4, 2015, respectively. The primary purpose of the interview process is to assess each top tier project for feasibility, benefit/cost ratios, and other factors in accordance with stipulations set forth by DWR in the various Proposal Solicitation Packages (grant application requirements) that were released for each round of Proposition 84 IRWM funding and will be released for the two Proposition 1 IRWM implementation rounds. Projects are evaluated in accordance with the Proposal Solicitation Package requirements, because the Region is within

a competitive IRWM Funding Area (the CRFA). Due to competition within the CRFA, the grant proposal packages that the Region submits to DWR are scored and compared against proposal packages from other IRWM regions. The competitive grant process requires the Region to submit grant proposals that are robust and contain projects that are highly feasible, have strong cost-benefit ratios, and will likely score well within DWR's established grant scoring process.

Stakeholder Input

Stakeholders have the ability to provide input and feedback on projects through the online project database, during project review sessions, at Planning Partners meetings, and through participation in project selection workgroups. The project selection process for Proposition 84-Round 1 funding was finalized at public meetings of the Planning Partners held on September 28, 2010 and October 26, 2010, and the projects for Proposition 84-Rounds 2, 3, and 4 were approved by the Planning Partners on December 13, 2012, June 12, 2014, and June 11, 2015, respectively. For the Round 1 Proposition 1 Implementation Grant process (anticipated in late 2018) the Planning Partners will be asked to provide input on the existing project selection and review processes. Specifically, the Planning Partners will be asked to provide direction and a recommendation on Planning Partner involvement in the project scoring and interview processes.

During Rounds 1, 2, 3, and 4 of Proposition 84 Implementation Grant funding stakeholders that submitted projects were also involved in that they could request feedback from the CVRWMG regarding improvements or revisions that could be made to potentially assist them in future rounds of grant funding. The CVRWMG commits to honoring this process in of the next Proposition 1 Implementation Grant funding rounds and will provide feedback to interested parties on how to improve projects for competitiveness or provide information to project sponsors about why their projects were not selected.

Table 9-1: Project Prioritization Criteria and Relationship to IRWM Goals and Objectives

Goals	Objectives	DWR IRWM Principles					Priorities of the Coachella Valley						Feasibility
		Addresses Multiple IRWM Plan Objectives	Integrates Multiple Resource Management Strategies	Addresses a Statewide Priority[1]	Linked to Other Projects	Involves More than One Partner	Optimizes Water Supply Reliability	Protects or Improves Water Quality	Manages Flood Risks	Optimizes Conjunctive Use of Surface and Groundwater Supplies	Directly Benefits Disadvantaged Communities	Maximize Stakeholder Involvement and Stewardship	Identified in Existing Plan
1. Optimize water supply reliability.	Provide reliable water supply for residential and commercial, agricultural community, or tourism needs.	X	X	X	O	O	X	X			O	O	X
	Manage groundwater levels to reduce overdraft, manage perched water, and minimize subsidence.	X	X		O	O	X	X		O	O	O	X
	Secure reliable imported water supply, including restoring/improving reliability of State Water Project supply and securing other imported water supplies.	X	X		O	O	X	X		O	O	O	X
	Maximize local supply opportunities, including water conservation, water recycling and source substitution, and capture and infiltration of runoff.	X	X	X	O	O	X	X	O		O	O	X

Goals	Objectives	DWR IRWM Principles					Priorities of the Coachella Valley						Feasibility
		Addresses Multiple IRWM Plan Objectives	Integrates Multiple Resource Management Strategies	Addresses a Statewide Priority[1]	Linked to Other Projects	Involves More than One Partner	Optimizes Water Supply Reliability	Protects or Improves Water Quality	Manages Flood Risks	Optimizes Conjunctive Use of Surface and Groundwater Supplies	Directly Benefits Disadvantaged Communities	Maximize Stakeholder Involvement and Stewardship	Identified in Existing Plan
2. Protect water quality.	Protect groundwater quality and improve, where feasible.	X	X	X	O	O	X	X		O	O	O	X
	Preserve and improve surface water quality by maintaining integrity of agricultural drainage systems, protecting the quality of natural runoff used for potable supply, and reducing pollution in stormwater runoff.	X	X	X	O	O	X	X		O	O	O	X
3. Provide stewardship of our water-related natural resources.	Preserve water-related local environment and restore, where feasible.	X	X	X	O	O		O			O	O	X
	Manage flood risks, including current acute needs and needs for future development.	X	X	X	O	O	X	X	X		X	O	X
4. Coordinate and integrate water resource management.	Optimize conjunctive use of available water resources.	X	X		O	O	X	O		X	O	O	X
	Maximize stakeholder involvement and stewardship in water resource management.	X			X	X	X	X	O	O	X	X	X

Goals	Objectives	DWR IRWM Principles					Priorities of the Coachella Valley						Feasibility
		Addresses Multiple IRWM Plan Objectives	Integrates Multiple Resource Management Strategies	Addresses a Statewide Priority[1]	Linked to Other Projects	Involves More than One Partner	Optimizes Water Supply Reliability	Protects or Improves Water Quality	Manages Flood Risks	Optimizes Conjunctive Use of Surface and Groundwater Supplies	Directly Benefits Disadvantaged Communities	Maximize Stakeholder Involvement and Stewardship	Identified in Existing Plan
5. Ensure cultural and social sustainability of water in the Coachella Valley.	Address water-related needs of local Native American culture.	X	X	X	O	O	X	X			O	X	X
	Address water and sanitation needs of disadvantaged communities.	X	X	X	O	O	X	X			X	X	X
	Maintain affordability of water.	X			O	O	X	O		O	O	O	X
	Relative Ranking/Importance to Achieving IRWM Goals and Objectives	A	A	B	C	C	B	B	B	B	B	B	A

X = directly related; O = indirectly related

Proposed initial weighting: A = 25% (addresses 7+objectives), B=12.5% (achieves 2-6 objectives), C=6.25% (achieves <2 objectives directly).

1. Statewide Priorities are:
   - Drought preparedness
   - Use and reuse water more efficiently
   - Climate change response actions
   - Expand environmental stewardship
   - Practice integrated flood management
   - Protect surface water and groundwater quality
   - Improve tribal water and natural resources Ensure equitable distribution of benefits

Table 9-2: Project Scoring Guide

Component	Criterion	Scoring Procedure[1]	Points Assigned	Weighting	Sub-total
1. Principles of IRWM Planning	A. Addresses Multiple IRWM Plan Objectives	Score based on # of objectives addressed	4+ objectives = 20 pts 3 objectives = 15 pts 2 objectives = 10 pts 1 objective = 5 pts	11%	70
	B. Integrates Multiple Resource Management Strategies	Score based on # of strategies employed	8+ strategies = 20 pts 6-7 strategies = 15 pts 4-5 strategies = 10 pts 2-3 strategies = 5 pts	11%	
	C. Addresses a Statewide Priority	Score is based on Yes/No response	Yes = 10 pts No = 0 pts	6%	
	D. Linked to Other Projects	Score is based on Yes/No response	Yes = 10 pts No = 0 pts	6%	
	E. Involves More than One Partner	Score is based on Yes/No response	Yes = 10 pts No = 0 pts	6%	
2. Priorities of the Coachella Valley	A. Optimizes Water Supply Reliability	Score is based on Yes/No response	Yes = 20 pts No = 0 pts	9%	120
	B. Protects or Improves Water Quality	Score is based on Yes/No response	Yes = 20 pts No = 0 pts	9%	
	C. Manages Flood Risks	Score is based on Yes/No response	Yes = 20 pts No = 0 pts	9%	
	D. Optimizes Conjunctive Use of Surface and Groundwater Supplies	Score is based on Yes/No response	Yes = 20 pts No = 0 pts	9%	
	E. Directly Benefits Disadvantaged Communities	Score is based on Yes/No response	Yes = 20 pts No = 0 pts	9%	
	F. Maximizes stakeholder involvement and stewardship in water resource management*	Score is based on Yes/No response	Yes = 20 pts No = 0 pts	9%	
3. Project Feasibility	A. Identified in Existing Plan	Score is based on Yes/No response	Yes = 10 pts No = 0 pts	6%	10
				Total	**200**

1. New prioritization criterion based on input received by stakeholders on Objective J (refer to *Chapter 6 Objectives* for more information)

9.2.3 IRWM Project Selection Factors

The following subsections outline the project selection factors identified by DWR and used by the CVRWMG in the project selection process. Refer to *Chapter 8 Resource Management Strategies, Section 8.5 Adapting Resource Management Strategies to Climate Change* for more information regarding climate change adaptation and mitigation. To receive full credit for meeting a selection criterion, projects must be consistent with the description or requirements of each criterion as provided in the appropriate chapter of this IRWM/SWR Plan or relevant source document (e.g., statewide priorities as described in DWR documentation). Partial credit may be awarded to projects that partially meet a criterion or indirectly contribute to criteria.

Contribution to IRWM/SWR Plan Objectives

As described above, one of the primary scoring criteria used for the project review process is to degree to which a project contributes to the regional objectives. The various projects submitted for this IRWM/SWR Plan and associated funding applications are scored (Criterion 1A and 2A-E) based on how well each project contributes to the objectives, up to a maximum of 200 points. The established IRWM/SWR Plan Objectives are listed below:

A. Provide reliable water supply for residential and commercial, agricultural community, and tourism needs.
B. Manage groundwater levels to reduce overdraft, manage perched water, and minimize subsidence.
C. Secure reliable imported water supply, including restoring/improving reliability of State Water Project supply and securing other imported water supplies.
D. Maximize local supply opportunities, including water conservation, water recycling and source substitution, and capture and infiltration of runoff.
E. Protect groundwater quality and improve, where feasible.
F. Preserve and improve surface water quality by maintaining integrity of agricultural drainage systems, protecting the quality of natural runoff used for potable supply, and reducing pollution in stormwater runoff.
G. Preserve water-related local environment and restore, where feasible.
H. Manage flood risks, including current acute needs and needs for future development.
I. Optimize conjunctive use of available water resources.
J. Maximize stakeholder involvement and stewardship in water resource management.
K. Address water-related needs of local Native American culture.
L. Address water and sanitation needs of disadvantaged communities, including those in remote areas.
M. Maintain affordability of water.

The IRWM/SWR Plan also provides measurable targets for each IRWM/SWR Plan objective. These measurable targets provide a way to assess each submitted project's contribution to the regional goals and objectives established by the Coachella Valley's stakeholders. Each project's contribution to the IRWM/SWR Plan objectives will be measured and monitored during project implementation. The CVRWMG coordinates with project proponents on an ongoing basis to evaluate the status of each IRWM project. The CVRWMG provides general updates to stakeholders on each of the grant rounds and when

projects are anticipated to be complete. Once projects are complete, project sponsors are invited to present the results of the completed project at the Planning Partners meetings.

Relationship to RMS

The implementation by stakeholders of projects included in **Appendix VI-H** incorporate a wide range of resource management strategies (RMS) to achieve the Region's goals and objectives (see *Chapter 8 Resource Management Strategies* for a detailed discussion). Each RMS identified in the *California Water Plan Update 2009,* as well as others identified by Region stakeholders, can contribute to the IRWM/SWR Plan goals and objectives.

Table 8-2 (in *Chapter 8 Resource Management Strategies*) presents Coachella Valley's regional objectives and their correlation to the RMS. Project submittals are required to identify both the regional goals and objectives and the specific RMS employed by each implementation project. The diversification of management strategies across the Region's implementation projects will ensure that all critical water management needs are addressed without fail.

Potential changes the Region may face because of climate change include increased droughts in increased variability in rainfall. *Chapter 8 Resource Management Strategies, Section 8.5 Adapting Resource Management Strategies to Climate Change* describes the potential impacts of climate change, and presents how the RMS included in the 2018 IRWM/SWR Plan contribute to climate change mitigation and adaptation strategies.

Statewide Priorities

The Statewide Priorities identified by DWR in their IRWM Grant Program Guidelines (July 2016) include a broad range of project types that address current water management issues. These Statewide Priorities are presented in **Table 9-3**. The 2010 Statewide Priorities were considered during development of the Region's goals and objectives and the 2016 Statewide Priorities were considered during this 2018 IRWM/SWR Plan update. However, regional needs and issues were of primary importance.

Of the eight aforementioned priorities set forth by DWR, CVRWMG and the Planning Partners considered one priority, Climate Change Response Actions, separately from the other Statewide Priorities in the project review process. For specific information on how this priority was considered, please refer to the sections below.

Technical Feasibility

The CVRWMG and Planning Partners consider the technical feasibility of submitted projects during the review and prioritization process. Technical feasibility is related to the knowledge of the project location; knowledge of the water system at the project location; or the material, methods, or processes proposed to be employed in the project. Technical feasibility of each project submittal is assessed through the following fields in the online project database: list regulatory permits; list California Environmental Quality Act (CEQA)/National Environmental Policy Act (NEPA) documents; list feasibility study(s); and describe need for project.

A list of regulatory permits will demonstrate how the project has developed. Dates of permitting will show how long the project has been underway and give the CVRWMG an idea of how much funding is required in order to complete the project. Greater understanding of the project will be achievable if permitting documentation is accounted for in the project prioritization process.

Providing proof of CEQA and NEPA documents will identify a project's environmental circumstances which can help pinpoint a project's technical feasibility. According to Section 21001 of the CEQA Guidelines, the CEQA environmental review process in intended to:

- Develop, maintain and enhance a high-quality environment;
- Provide California's residents with clean air and water, and with historical, scenic, natural and pleasing visual amenities;
- Prevent the elimination of fish and wildlife species and communities for present and future generations;
- Provide long-term environmental protection plus a decent home and living environment to its citizens;
- Create and maintain harmony between people and nature so that short and long-term social and economic benefits can be gained;
- Develop standards and procedures designed to provide environmental protection;
- Consider short and long-term economic and technical costs and benefits when approving development proposals;
- Foster intergovernmental coordination and cooperation; and
- Enhance public participation in government planning and decision making.

CEQA/NEPA documentation will include project background, methods, goals, data, environmental risks, and other components that will help project proponents gauge the technical feasibility of their projects. Per Section 15262 of the CEQA Guidelines, this IRWM/SWR Plan qualifies as a planning study and does not have a legally binding effect of the participating agencies. As such, programmatic environmental analysis under CEQA is not required.

The existence of a technical feasibility study will provide greater efficiency in project selection. The feasibility study will provide CVRWMG with an evaluation of the potential impacts of the proposed project, including potential impacts specific to DACs. The analysis will help CVRWMG determine how likely the project will achieve regional and statewide goals and objectives and how well the project will score within DWR's established grant scoring process (refer to *Section 9.2.2 IRWM Project Review and Prioritization Process* above for more information). As explained within *Chapter 4 Disadvantaged Communities*, technical feasibility requirements may disproportionately impact DACs, which may not have the technical resources available to complete technical feasibility documents prior to and without IRWM grant funding.

A list of projects' needs can provide significant guidance for project selections. As described later in the chapter, if project needs touch upon critical issues of the Region (i.e. DAC/tribal lands water quality, environmental justice) then, greater consideration will be taken. This information was considered both during project review and scoring, as well as during consideration of projects for specific funding applications.

Projects submitted as part of this IRWM/SWR Plan are expected to be in varying stages of implementation, including planning, feasibility study, design and engineering, restoration, and construction. Several implementation projects may be considered "technical feasibility studies" to prepare for future construction projects that meet the Coachella Valley's water management needs. Additionally, several projects may be land acquisition projects that would not require a demonstration of technical feasibility.

For those projects that would require demonstration of technical feasibility, and are not technical feasibility studies themselves, technical feasibility is be demonstrated in either the form of 1) published feasibility studies, master plans, pre-design studies and/or 2) by successful implementation and operation of other similar projects.

Table 9-3: Statewide Priorities

Statewide Priority	Description
Make Conservation a Way of Life	Proposals that contain projects that implement or expand water conservation efforts by contributing to sustainable water supply and reliability. Desirable proposals will do one or more of the following: • Building on current water conservation efforts and promoting the innovation of new systems for increased water conservation. • Expand agricultural and urban water conservation and efficiency to exceed SB-X7-7 targets • Provide funding for conservation and efficiency • Increase water sector energy efficiency and greenhouse gas (GHG) reduction capacity • Promote local urban conservation ordinances and programs
Increase Self-Reliance and Integrated Water Management Across All Levels of Government	Proposals that include projects that increase local supply reliability through integrated water management efforts. Desirable proposals include those with projects that: • Ensure water security at the local level, where individual government efforts integrate into one combined regional commitment where the sum becomes greater than any single piece • Support and expand funding for Integrated Water Management planning and projects • Improve land use and water alignment • Provide assistance to disadvantaged communities • Encourage State focus on projects with multiple benefits • Increase the use of recycled water
Achieve the Co-Equal Goals for the Delta	This action is directed towards State and federal agencies; however, consideration will be afforded to eligible local or regional projects that also support achieving the co-equal goals providing a more reliable water supply for California and to protect, restore, and enhance the Delta ecosystem.
Protect and Restore Important Ecosystems	Proposals that: • Continue protecting and restoring the resiliency of our ecosystems to support fish and wildlife populations, improve water quality, and restore natural system functions • Restore key mountain meadow habitat • Manage headwaters for multiple benefits • Protect key habitat of the Salton Sea through local partnership • Restore coastal watersheds • Continue restoration efforts in the Lake Tahoe Basin • Continue restoration efforts in the Klamath Basin • Water for wetlands and waterfowl • Eliminate barriers to fish migration • Assess fish passage at large dams • Enhance water flows in stream systems statewide

Statewide Priority	Description
Manage and Prepare for Dry Periods	Proposals that contain projects that effectively manage and prepare for dry periods by contributing to sustainable water supply and reliability during water shortages. Desirable proposals will achieve one or more of the following: • Effectively manage water resources through all hydrologic conditions to reduce impacts of shortages and lessen costs of state response actions. Secure more reliable water supplies and consequently improve drought preparedness and make California's water system more resilient • Revise operations to respond to extreme conditions • Encourage healthy soils
Expand Water Storage Capacity and Improve Groundwater Management	Proposals that: • Increase water storage for widespread public and environmental benefits, especially in increasingly dry years and better manage our groundwater to reduce overdraft • Provide essential data to enable Sustainable Groundwater Management • Support funding partnerships for storage projects • Improve Sustainable Groundwater Management • Support distributed groundwater storage • Increase statewide groundwater recharge • Accelerate clean-up of contaminated groundwater and prevent future contamination
Provide Safe Water for All Communities	Proposals that: • Provide all Californians the right to safe, clean, affordable and accessible water adequate for human consumption, cooking, and sanitary purposes • Consolidate water quality programs • Provide funding assistance for vulnerable communities • Manage the supply status of community water systems • Additionally, as required by Water Code §10545, in areas that have nitrate, arsenic, perchlorate, or hexavalent chromium contamination, consideration will be given to grant proposals that included projects that help address the impacts caused by nitrate, arsenic, perchlorate, or hexavalent chromium contamination, including projects that provide safe drinking water to small disadvantaged communities
Increase Flood Protection	Proposals that: • Collaboratively plan for integrated flood and water management systems, and implement flood projects that protect public safety, increase water supply reliability, conserve farmlands, and restore ecosystems • Improve access to emergency funds • Better coordinate flood response operations • Prioritize funding to reduce flood risk and improve flood response • Encourage flood projects that plan for climate change and achieve multiple benefits
Increase Operational and Regulatory Efficiency	This action is directed towards State and federal agencies; however, consideration will be afforded to eligible local or regional projects that also support increased operational of the State Water Project or Central Valley Project.
Identify Sustainable and Integrated	This action is directed towards State agencies and the legislature.

Statewide Priority	Description
Financing Opportunities	

Source: Proposition 1 IRWM Grant Program Guidelines (DWR 2016)

Critical Issues in DACs

As described above, the project selection process considered if a project helps to address critical water supply and water quality needs of DACs within the Region. The various projects submitted for this IRWM/SWR Plan were scored (Criterion 1A and 2E) based on how well each project contributes to addressing DAC needs, up to a maximum of 40 points. The "Call for Projects" was opened for any public agency or non-profit organization, including DACs, who wanted to submit water projects within the Region. *Chapter 4 Disadvantaged Communities* provides an overview of DAC geography and demographics. *Chapter 3 Issues and Needs, Section 3.1.8 Disadvantaged Communities* includes an explanation of important water and wastewater issues pertinent to Coachella Valley DACs.

The affordability of water, improvement of water quality, and lack of water and wastewater infrastructure are among the main concerns in DACs. All implementation projects that address these concerns were given allocated points in the scoring process.

During Proposition 84-Rounds 1, 2, 3, and 4, a total of 54 submitted projects addressed critical DAC issues. The CVRWMG provided local representatives from DAC organizations – primarily the eastern Coachella Valley collaborative between Pueblo Unido CDC, Poder Popular, and CRLA – with technical support in developing project information for submittal to the IRWM/SWR Plan. The forthcoming CRFA DAC Needs Assessment, anticipated to be complete in December 2020, will further define DAC needs and priority projects to address those needs.

Chapter 11 Framework for Implementation provides an overview of benefits expected from each type of project and project component (**Table 11-1**). Projects implemented in DACs are expected to provide these benefits to DACs. *Chapter 11 Framework for Implementation* also highlights which benefits are likely to provide a greater benefit to DACs compared to other communities in the Region.

Critical Issues on Tribal Lands

There are seven Native American tribes located in or near the Region, as shown in **Figure 2-15** (see *Chapter 2 Region Description*). Tribes were included and participated in the "Call for Projects" during development of this IRWM/SWR Plan. As explained in *Chapter 3 Issues and Needs* Coachella Valley tribal lands suffer from a lack of adequate water and wastewater infrastructure and high costs associated with improving it. There is a lack of basic water and wastewater infrastructure on some tribal lands in the eastern Coachella Valley. For instance, private sewer facilities are undersized or inadequate in low percolation areas.

Of the 68 submitted projects in Round 1, one was submitted by a tribal government; this project promotes wetland expansion in Desert Cahuilla located on the northwest shore of the Salton Sea. Further, several additional IRWM projects – specifically those improving local groundwater conditions – provide benefits to tribal governments. The Region's *Proposition 84-Round 2 Implementation Grant Proposal* includes planning and design support for extension of municipal water supplies to an economically disadvantaged tribal community in the eastern Coachella Valley.

As described above, *Chapter 11 Framework for Implementation* provides an overview of benefits expected from each type of project and project component (**Table 11-1**). Projects implemented by Tribal Nations, on tribal land, or directly related to tribes in other ways (such as constructing a connection between tribal land and existing service areas, even if connection is not on tribal land) are expected to provide these benefits to tribes. *Chapter 11 Framework for Implementation* also highlights which benefits are likely to provide greater benefits to tribes.

Environmental Justice Considerations

Environmental justice is defined in California law (Government Code section 65040.12) as "the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws and policies." Environmental justice in water management includes:

- Supporting community health, as well as a clean and safe environment,
- Diversifying the decision-making process by calling for involvement of all people and communities,
- Encouraging a more equitable distribution of economic benefits,
- Empowering communities themselves to take action towards improving their environment,
- Increasing awareness, understanding and effective cooperation within and among communities, and,
- Ensuring the right of all people to equal and fair treatment under the laws and regulations of the United States.

IRWM/SWR Plan projects that support water supply diversity and water quality improvement ensure equitable water supply reliability, quality, safety, and economic benefits for all water users within the Coachella Valley, regardless of ethnicity or economics. For example, DACs (along with the Region's population as a whole) will benefit from floodplain management projects that address current flooding issues.

Stakeholder outreach programs (see *Chapter 7 Stakeholder Involvement*) used to develop this IRWM/SWR Plan support the inclusion of DACs located within the Region's municipalities and unincorporated areas. The CVRWMG has historically held Planning Partners meetings in which all DACs were invited. Moving forward, the CVRWMG will strive to conduct future Planning Partners meetings on a quarterly basis and is committed to holding Planning Partners meetings semi-annually; however, these meetings may be held more or less frequently depending upon the status of the IRWM Program and SWGP. The priority of future Planning Partners meetings will be to keep Planning Partners informed about important milestones and provide a venue for the CVRWMG to vet major decisions and discuss time-sensitive issues with the Planning Partners. Planning Partners include the County of Riverside, Coachella Valley area cities, DAC representatives, tribal staff, and other invited water-related organizations.

As described above, many of the submitted IRWM/SWR Plan projects address environmental justice by (1) creating safe and reliable water supply for DACs, (2) improving water quality within DACs, and/or (3) reducing flood risks within DACs.

Project Costs and Financing

Estimated costs and project implementation information presented within this IRWM/SWR Plan (see *Chapter 11 Framework for Implementation, Section 11.5 Finance*) were derived from project proponents, so costs for all projects presented herein should be considered preliminary planning estimates. Project costs will be subject to refinement and adjustment in future plan updates and in future grant funding applications.

Project information on benefits, impacts, technical feasibility, and schedules were also provided by project proponents. Additional analysis of submitted project information will be required as part of future funding prioritization efforts to (1) confirm the submitted project information, and (2) to ensure consistency in the methods used to develop the project information.

Economic Feasibility

As part of the project selection process, the economic feasibility of each project was considered. Project proponents were asked to submit information about minimum and maximum project costs, grant funds requested, estimated local match amount, match type, and annual operations and maintenance costs. Completing this information indicates that the project proponents has developed a complete scope and budget necessary for project implementation. Further, additional information on cost effectiveness and certainty of local cost share was requested from project sponsors during deliberation of the funding application package.

A full economic-benefits analysis will be developed as part of the IRWM implementation grant application process. According to DWR's Economic Analysis Guidebook, the objective of economic analysis is to determine if a project represents the best use of resources over the analysis period (that is, the project is economically justified). The test of economic feasibility is passed if the total benefits that result from the project exceed those which would accrue without the project by an amount in excess of the project costs, according to the guidebook. For more information regarding the economic feasibility, please refer to *Chapter 11 Framework for Implementation, Section 11.5.1 Sources and Certainty of Funding.*

Project Status

Project status, also known as "readiness to proceed," is completed in the project database by the project proponents. This field is considered during project prioritization; however, readiness to proceed is not necessarily a reason for project exclusion from an IRWM/SWR Plan. As the planning horizon for an IRWM/SWR Plan is 20 years, even a conceptual project should be considered as it may be projected to have benefits that would be worth realizing by implementing the project or by developing an alternate, integrated, or modified project.

Project status may have to be reconsidered as implementation projects are matched with sources of grant funding. Funding sources may want projects completed within certain time limits. However, it is also true that some funding sources may cover planning or developmental phases of a project. The CVRWMG will keep in mind conditions of the specific funding opportunities and will communicate this information to all project proponents during the "Call for Projects" and subsequent project selection processes.

Strategic Considerations

Integrating similar projects – based on geographic or RMS similarities – have and will be considered by the CVRWMG, Planning Partners, and other stakeholders before proceeding with project selection. The

CVRWMG has taken full advantage of the principals of IRWM planning by combining or modifying local projects into regional projects or 'packages.'

At the CVRWMG Integration Workshop held on August 11, 2010 and a Planning Partners meeting on September 28, 2010, brainstorming sessions occurred and the resulting suggestions for integration were communicated to project proponents. For example, project proponents have collaborated to integrate multiple septic conversion projects, water quality related projects, and/or water recycling projects. Recommendations that projects within geographic proximity be combined were also communicated and implemented. The CVRWMG held a similar brainstorming session at the October 2018 Planning Partners meeting in preparation for the Proposition 1-Round 1 IRWM Implementation Grant.

The online project database requests information from project sponsors on identifying linkages with other projects. Other strategic considerations include the project being identified in existing planning documents, and consideration of project sponsors.

Climate Change Adaptation

For additional detail on climate change considerations, please refer to *Chapter 2 Region Description, Section 2.8 Climate Change* and/or *Chapter 8 Resource Management Strategies, Section 8.5 Adapting Resource Management Strategies to Climate Change.* Climate change concerns are acknowledged and incorporated into long-term planning related to water supply, water quality, and flood management in the Coachella Valley. The CVRWMG recognizes that climate change could affect future water supply availability and reliability. Therefore, the CVRWMG will consider projects that aim to conserve and manage future sustainability of the Region's water supply. As described in *Chapter 8 Resource Management Strategies*, the RMS included in this IRWM/SWR Plan help to address climate change, so consideration of RMS inherently includes how a project contributes to climate change adaptation. Specifically, **Table 8-3** in *Chapter 8 Resource Management Strategies* demonstrates which RMS would help the Region to adapt to climate change vulnerabilities and which would help to mitigate GHG emissions.

Climate Change Mitigation

The CVRWMG recognizes the relationship between energy consumption, GHG emissions, and water resources management. Consideration is given in the project selection process to projects that incorporate GHG emission reduction strategies. GHG reduction methods such as California Air Resources Board (CARB) strategies (see *Chapter 2 Region Description, Section 2.8.1 Legislative and Policy Context)*, participation in the California Climate Action Registry, and carbon sequestration (where practical) are recommended to agencies and organizations participating in IRWM planning. Additionally, *Chapter 8 Resource Management Strategies, Section 8.5 Adapting Resource Management Strategies to Climate Change*, describes how the RMS selected for inclusion in the IRWM/SWR Plan help to address climate change.

9.3 List of Selected IRWM Projects

This section describes how the submitted IRWM project list(s) will be stored, maintained, and shared.

Periodic updates of the Coachella Valley IRWM project list must be made to ensure current projects are considered for each new funding opportunity. Updating the project list will allow new projects to be added,

as regional conditions or the State's regulatory setting changes. This will also allow project proponents to update and revise their project submittals as necessary. The online project database developed for this IRWM Plan will remain open and available to project proponents for updates, additions, and revisions over time. As new funding opportunities arise, the CVRWMG will communicate new project submittal deadlines and other relevant information.

The Coachella Valley IRWM project list is accessible through the online project database (http://www.cvrwmg.org/projects.php). The online project database allows project proponents to update project information, review other projects and identify integration opportunities, and add additional features so the projects provide multiple benefits. This online project database allows the project list to remain "live", always available for review and update. The Coachella Valley IRWM/SWR Plan does not require re-adoption following changes to this project list. While the online project database contains the official Coachella Valley IRWM project list, **Appendix VI-H** provides a list of IRWM projects included in the database as of February 26, 2018 as an example of projects that have been submitted in the past. **Appendix VI-H** is not to be considered an exhaustive list of projects, nor does it limit the projects or types of projects that can be submitted to the database.

When the CVRWMG identifies each new funding opportunity, it will work with the Planning Partners to review, score and rank, and select projects for the funding application. A list of projects selected for inclusion in grant applications will be provided to stakeholders via the stakeholder email list and at a Planning Partners meeting. All grant applications will be submitted to the Planning Partners for review and approval prior to submission to the CVRWMG governing bodies and grant agency.

Modification Process

Chapter 7 Stakeholder Involvement presents an overview of the CVRWMG's governance structure overseeing Plan implementation. The CVRWMG will similarly be responsible for conducting periodic IRWM/SWR Plan reviews and updates. The list of projects to be considered for implementation identified in this section will be subject to review and revision as part of the periodic IRWM/SWR Plan updates. Over time, it is expected that some projects included in this IRWM/SWR Plan will be implemented, and other projects not currently included in this IRWM/SWR Plan will be added to the project database for implementation (see *Chapter 7 Stakeholder Involvement, Section 7.8.1 Updating or Amending the IRWM/SWR Plan* for more information).

9.4 IRWM Grant Funding Proposal Prioritization

This section describes how the submitted IRWM project list(s) will be prioritized for future grant funding proposals.

Projects selected for grant funding packages will be selected using a funding proposal prioritization process that goes beyond the IRWM prioritization process presented above. The prioritization process presented above described the prioritization process used to identify top implementation projects. While this process ranked projects based on ability to address regional objectives and other criteria, the process does not identify specific groups of projects for which funding should be sought. The reason for this is twofold:

1. Prioritizing projects for a specific funding proposal in the IRWM/SWR Plan would limit the versatility of the prioritization process for use in identifying projects for future funding opportunities; and

2. As this IRWM/SWR Plan is intended to be a living document, the prioritization process presented in this IRWM/SWR Plan should remain flexible, such that it may be adapted to changing regional needs.

A supplemental prioritization process must be implemented to identify appropriate projects from the implementation project list to be included in future funding proposals as they arise. The details of this process are fluid and should reflect the specific needs and requirements of the given funding opportunity.

As each new funding opportunity arises, the CVRWMG shall convene a Workgroup made up of CVRWMG members, Planning Partners, and/or other appropriate stakeholders to review and evaluate the IRWM/SWR Plan project list against the funding solicitation. During this evaluation process, the following criteria will likely be used identifying high priority projects:

- **Grant Program Preferences:** Funding programs frequently outline specific goals and objectives. Projects selected for inclusion in a funding proposal should conform to the details of the specific funding program.
- **Regionalism**: Some projects may have only local beneficiaries, while other projects may benefit stakeholders throughout the entire Region. Projects with Region-wide benefits may be preferable to those with only local beneficiaries when applying for funding as a Region.
- **Cost-Effectiveness:** As the cost of doing business continues to increase, agencies are challenged to identify cost-effective solutions. Both short- and long-term cost-effectiveness, as well as potential externalized costs to the public, may be a factor for consideration in funding proposal prioritization.
- **Readiness to Proceed**: Some funding opportunities require projects to be at a specific point in development, such as design or construction, while other opportunities may be targeted toward planning-level projects.

As appropriate, the CVRWMG will incorporate these and other prioritization criteria to narrow the pool of high priority projects from the IRWM/SWR Plan-level prioritization to develop funding proposals. These criteria may be applied in multiple ways. Some prioritization criteria are essential to a project's success in achieving the Region's objectives and/or being eligible for funding. The specific criteria used, and precise method for applying the criteria, will be determined on a case-by-case (i.e., funding opportunity by funding opportunity) basis using a consensus-based approach among the Workgroup.

9.5 Stormwater Project Evaluation and Prioritization

This section describes how submitted projects satisfy SWRP benefit categories using an integrated metrics-based analysis. In addition, this section also outlines how stormwater projects will be identified and prioritized based on provided benefits to the Planning Area.

Stormwater resource management is an integral part of many of the Coachella Valley IRWM regional objectives. Development and implementation of SWRP projects can help the Region meet its IRWM planning targets and ultimately address the regional goals and objectives. The following sections summarize the stormwater resource priorities in the IRWM/SWR planning area, the stormwater benefits metrics used to measure progress toward meeting stormwater objectives, the SWRP project prioritization process, and the integrated project analysis of how the SWRP projects will collectively address the identified water management objectives for the IRWM/SWR planning area using the defined benefit metrics.

9.5.1 Stormwater Priorities

The Coachella Valley has unique stormwater-related issues and priorities. Due to the surrounding mountainous topography and underlying valley floor geology, flooding is a prominent issue in the Coachella Valley. Stormwater management facilities are lacking in many areas of the SWR planning area resulting in high flood risk for many communities, particularly DACs, as described in *Chapter 2 Region Description, Section 2.2.7 Stormwater and Flood Management*. Since groundwater is a primary local water source for the majority of the population in the Region, the promotion of stormwater infiltration to the groundwater basin to increase local supply is a key water resource management objective. Because of these conditions, flood management and stormwater recharge are the primary stormwater priorities in the IRWM/SWR planning area. Stakeholders identified these priorities during the September 28, 2017 Planning Partners meeting described in *Chapter 6 Objectives, Section 6.3 Stormwater Resource Plan Benefits Prioritization*. Stakeholders prioritized stormwater benefits that provided flood management and recharge to the groundwater basin.

In addition to flood management and stormwater recharge priorities, water quality issues in the Coachella Valley Stormwater Channel (CVSC) are also a concern. As described in *Section Chapter 2 Region Objectives, 2.5.3 Surface Water Quality* and *Section 2.5.5 Stormwater Quality and Water Quality Compliance*, the CVSC is listed as impaired on the State's 303(d) list for Pathogens, dichloro-diphenyl-trichloroethane (DDT), Dieldrin, Polychlorinated biphenyl (PCBs), Toxaphene, and ammonia. A bacterial indictor TMDL was adopted by the Regional Board in 2007, with the revision adopted in 2010. TMDLs for the remaining impairments are scheduled to be developed over the next several years, with the most recently listed impairment having a TMDL deadline of 2025. In order to improve water quality conditions in the CVSC and meet environmental surface water quality compliance requirements, the primary water quality priority for the IRWM/SWR planning area is to address the existing bacterial indicator TMDL with a secondary water quality priority to address the other 303(d) listed water quality impairments that have not yet had TMDLs developed.

The IRWM/SWR planning area stormwater priorities align with the regional IRWM priorities and objectives as shown in **Table 9-4**.

Table 9-4: SWR Priorities and Related Regional IRWM Priorities and Objectives

SWR Priority Ranking	SWR Priority	Related Regional IRWM Priority	Related IRWM Objectives
1	**Flood Management:** Decreased Flood Risk	Manage Flood Risks	• **Objective H:** Manage flood risks, including current acute needs and needs for future development.
2	**Water Supply:** Stormwater Capture and Recharge into Groundwater Basin	• Optimize Water Supply Reliability • Optimize Conjunctive Use of Surface and Groundwater Supplies	• **Objective A:** Provide reliable water supply for residential and commercial, agricultural community, and tourism needs. • **Objective B:** Manage groundwater levels to reduce overdraft, manage perched water, and minimize subsidence. • **Objective D:** Maximize local supply opportunities, including water conservation, water recycling and source

SWR Priority Ranking	SWR Priority	Related Regional IRWM Priority	Related IRWM Objectives
			substitution, and capture and infiltration of runoff. • **Objective I:** Optimize conjunctive use of available water resources.
3	**Water Quality:** • Improve Surface Water Quality to Address Bacterial Indicator TMDL • Improve Surface Water Quality to address other 303(d) Listed Constituents	Protect or Improve Water Quality	• **Objective F:** Preserve and improve surface water quality by maintaining integrity of agricultural drainage systems, protecting the quality of natural runoff used for potable supply, and reducing pollution in stormwater runoff.

9.5.2 Stormwater Multiple Benefits and Associated Metrics

SWRP projects can provide multiple benefits by addressing stormwater management using a watershed-based approach, ultimately helping the Region meet the IRWM/SWR regional objectives and stormwater priorities. Stormwater benefits can be evaluated within five different benefit categories: water quality, water supply, flood management, environmental, and community benefits. Within each of the benefit categories, specific main and additional benefits have been identified that are most relevant to the Region. These benefits align with those presented in the *2015 SWRP Guidelines* (SWRCB 2015).

As part of the SWRP project submittal process, project proponents are responsible for quantifying project benefits based on documented and justifiable methods. To guide this quantification process, metrics were developed for each stormwater benefit within the five benefit categories. These metrics provide stakeholders with guidance on how to measure project benefits and are used to assess the collective benefits of stormwater projects over the planning area. The SWRP main and additional benefits as well as the metrics used to quantify them, are summarized in **Table 9-5** and **Table 9-6**. Additional benefits and related metrics used to quantify them will be incorporated as periodic updates of the SWRP project list occur.

Table 9-5: Summary of SWRP Main Benefits and Metrics

Benefit Category	Benefit	Quantitative Metrics
Water Quality	Increased filtration and/or treatment of runoff	• Average annual pollutant load reduction (lbs/yr) • Volume of water treated (mgd) • Volume of runoff infiltrated (AFY)
Water Supply	Increased water supply reliability	• Increase in water supply through direct groundwater recharge (AFY) • Increase in water supply through direct use (AFY)
	Conjunctive use	• Increase in water supply through in lieu recharge/ conjunctive use (AFY)
Flood Management	Decreased flood risk by reducing runoff rate and/or volume	• Reduction in peak flow discharge (cfs) • Reduction in volume of potential flood water (AFY)
Environmental	Environmental habitat protection and improvement	• Size of habitat protected or improved (acres) • Amount of instream flow rate improvement (cfs)
	Increased urban natural landscape and pervious surfaces	• Size of increase in urban natural landscape and pervious surfaces (acres)
Community	Employment opportunities provided	• Number of employment opportunities provided
	Public education	• Number of outreach materials provided, or events conducted

Table 9-6: Summary of SWRP Additional Benefits and Metrics

Benefit Category	Benefit	Quantitative Metrics
Water Quality	Nonpoint source pollution control	• Project Proponent Defined
	Reestablished natural water drainage and treatment	• Project Proponent Defined
	Treat more than one pollutant	• Number of pollutants treated
Water Supply	Water conservation	• Reduction in water use (AFY)
Flood Management	Reduced sanitary sewer overflows	• Reduction in sewer overflow volumes (AFY)
Environmental	Reduced energy use, GHG emissions, or provides a carbon sink	• Amount of energy consumption reduced (KWH/year) • Amount of GHG emissions reduced (tons/year)
	Reestablishment of natural hydrograph	• Project Proponent Defined
	Water temperature improvements	• Amount of temperature improvement (degrees F)
Community	Community involvement	• Number of participants per year
	Enhance and/or create recreational and public use areas	• Estimated visits per year

9.5.3 Stormwater Resource Plan Project Prioritization Process

Similar to the submittal process for IRWM projects, the submittal process for SWRP projects includes solicitation and prioritization. However, project selection does not occur as part of the submittal process as it does with IRWM projects due to the differences in funding programs. The CVRWMG engaged Coachella Valley stormwater stakeholders throughout the IRWM/SWR planning process to identify stormwater-related priorities for the Region. Planning Partners played an integral role by providing input to identify priority stormwater-related benefits through a benefits prioritization exercise as described in *Chapter 7 Stakeholder Involvement, Section 7.2.1 Group Membership and Participation* and submitting stormwater projects that best achieve the goals and objectives of the IRWM/SWR Plan. This section presents the process for prioritization and selection of stormwater projects, including:

- Procedures for submitting stormwater projects to the IRWM/SWR Plan, and
- Procedures for reviewing and prioritizing stormwater projects submitted to the IRWM/SWR Plan.

SWRP Project Submittal

Stormwater projects are submitted though the IRWM Opti database (further described in *Section 9.2.1 Project Submittal Process*) for inclusion in the SWRP. Although projects are submitted through the IRWM Opti database, the application and project selection process differ from the IRWM grant process. Project sponsors submitting stormwater projects for the SWGP submit individual applications to the State Water Resources Control Board (SWRCB). The CVRWMG and Planning Partners do not participate in the project selection process. Selection for funding is solely determined by the SWRCB.

The existing IRWM project database was modified to include a check box to identify SWRP projects and additional SWRP project-specific tabs. The SWRP Eligibility tab includes eligibility information to allow for an initial eligibility screening, which is described in Project Screening below and shown in **Figure 9-3**. The SWRP Benefits tab includes information on project benefits, quantification of benefits, how benefits will be achieved, and sources of quantification.

In January 2018, the CVRWMG released a "Call for Projects" to solicit SWRP projects for inclusion in the 2018 IRWM/SWR Plan Update. The CVRWMG will release an additional "Call for Projects" prior to SWGP funding round solicitations. The next SWGP funding solicitation (Round 2) is anticipated to open in early 2019.

Per the *2015 SWGP Guidelines*, stormwater projects must be included in a SWRP to be eligible for Proposition 1 funding. The project database constitutes a "living" project list and project sponsors can submit projects anytime for inclusion in the IRWM/SWR Plan. The SWRP project list is accessible through the online project database (http://www.cvrwmg.org/projects.php). While the online project database contains the official Coachella Valley SWRP project list, **Appendix VI-H** provides a list of SWRP projects included in the database as of February 26, 2018 as an example of projects that have been submitted in the past.

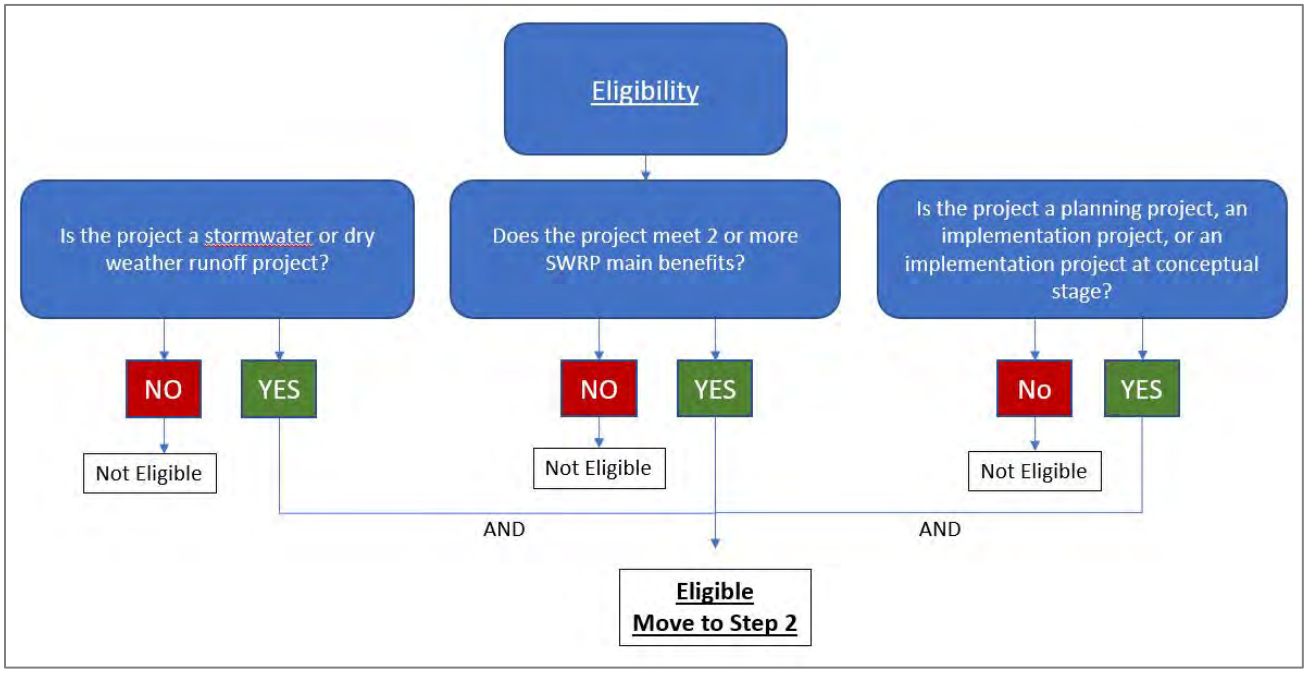
Project Screening

SWRP projects are scored and ranked in a two-step process. The first step in the SWRP project scoring and prioritization process is determining project eligibility. As discussed above, a SWRP Eligibility tab was added to the project database to allow project sponsors to determine project eligibility, which serves as an initial project screening process. Project eligibility is determined on a pass/fail basis and does not contribute

to scoring. The eligibility determination process is shown in **Figure 9-3**. Project eligibility requirements include:

- Must be an eligible applicant
  - Public agencies/entities
  - 501(c)(3) Nonprofit organizations
  - Federally recognized Indian Tribes
  - State Indian Tribes listed on the Native American Heritage Commission's Tribal Consultation List
  - Mutual water companies
- Project must be a stormwater or dry weather runoff project
- Project must contribute 2 or more Main Benefits and at least one additional benefit (see **Table 9-5**)
- Project must be a planning project or an implementation project (at planning or implementation stage)

Figure 9-3: SWR Project Eligibility Flow Chart



Project Prioritization

After eligibility is determined, SWRP projects submitted to the project database are scored and ranked (second step). **Table 9-7** below shows the project scoring methodology. Projects that result in multiple benefits score higher as additional benefits contributed by each project result in maximized water supply, water quality, flood management, environmental, and other community benefits within the Whitewater

River Watershed and IRWM/SWR planning area. Additional scoring criteria include secured capital and operation and maintenance (O&M) funding sources, project readiness, inclusion in an existing planning document, and addresses more than one pollutant. These scoring criteria are based off the SWRCB's *2015 SWRP Guidelines* and modified to accommodate regional priorities.

All stormwater projects must be ranked within a SWRP as an eligibility requirement to receive Proposition 1 funding. Scoring for Coachella Valley SWRP projects is automated in the project database and is presented in tiers. As shown in **Table 9-8**, a project that scores 12 points or more is a Tier 1 project, a project that scores 6 to 11 points is a Tier 2 project, and a project that scores 5 points or below is a Tier 3 project. It is important to note that project scoring and ranking does not hinder a project sponsor from applying for and potentially receiving SWGP grant funding. The SWRCB has stated that ranking will not be used to determine whether a project is funded. Project ranking is intended to be used as a tool by project sponsors to improve upon their projects, increase resulting benefits, and encourage collaboration between project sponsors. Unlike the IRWM project selection process, the CVRWMG has no authority to determine which SWRP projects are funded. It is recommended that project sponsors speak directly with a SWRCB representative to discuss specific projects and how SWGP applications will be processed and scored.

The SWRP projects submitted to the 2018 IRWM/SWR Plan during the January 2018 "Call for Projects" and each project's tiered ranking are shown in **Appendix VI-H**.

Table 9-7: Coachella Valley SWR Project Scoring Guide

Component	Criterion	Scoring Procedure	Points Assigned	Sub-Total
Eligibility	Is the project a stormwater or dry weather runoff project	Pass/Fail	-	-
	Does the project meet 2 or more SWRP main benefits	Pass/Fail	-	
	Is the project a planning project, an implementation project, or an implementation project at conceptual stage?	Pass/Fail	-	
Benefits and Quantification	Main Benefits	Score based on # of main benefits addressed (refer to *Section 9.5.2, Stormwater Multiple Benefits and Associated Metrics*)	5+ main benefits = 5 pts 4 main benefits = 4 pts 3 main benefits = 3 pts 2 main benefits = 2 pts	13

Component	Criterion	Scoring Procedure	Points Assigned	Sub-Total
	Additional Benefits	Score based on # of additional benefits addressed (refer to *Section 9.5.2, Stormwater Multiple Benefits and Associated Metrics*)	4+ additional benefits = 4 pts 3 additional benefits = 3 pts 2 additional benefits = 2 pts 1 additional benefit = 1 pt	
	Sources of Quantitative Benefits	Scored based on level of technical documentation that prepared for quantification	Design document = 4 pts Environmental Assessment = 3 pts Feasibility Study = 2 pts "Back of Envelope" = 1 pt	
Funding	Permanent Source of Funding for Capital Costs Secured	Score is based on Yes/No response	Yes = 1 pt No = 0 pts	2
	Permanent Source of Funding for O&M Costs Secured	Score is based on Yes/No response	Yes = 1 pt No = 0 pts	
Additional Scoring	Project located on Lands in Public Ownership	Score is based on Yes/No response	Yes = 1 pt No = 0 pts	8
	Project Readiness	Score is based on level of project readiness	Under Construction = 5 pts Design w/ Environmental = 5 pts Design w/o Environmental = 4 pts Feasibility study= 3 pts Master planning = 2 pts Conceptual planning = 1 pt	
	Project Identified in an Existing Study/Planning Document	Score is based on Yes/No response	Yes = 1 pt No = 0 pts	
	Project Addresses More than One Pollutant	Score is based on Yes/No response	Yes = 1 pt No = 0 pts	
Total				**23**

Table 9-8: Coachella Valley SWR Project Tiered Ranking

Score	Tier
12-23	Tier 1
6-11	Tier 2
0-5	Tier 3

9.5.4 Integrated Metrics-Based Analysis of Project Benefits

An integrated metrics-based benefit analysis was conducted using the stormwater projects submitted to the IRWM/SWR Plan to assess how the proposed stormwater and dry weather capture projects will address the IRWM/SWR Plan water management objectives and multiple benefits. The Coachella Valley SWRP project list is intended to be a living document. In practice, this means that projects will be added and updated beyond the initial creation of the IRWM/SWR Plan. Project solicitation periods would likely occur prior to funding solicitation periods or as needed. The project database will allow the project list and benefits quantifications to be continually updated by project proponents as projects are developed. The initial project information provided in the 2018 IRWM/SWR Plan Update reflects a set of stormwater projects submitted to the IRWM/SWR Plan and is intended to be refined as the projects move from conceptual to implementation stages. The subsections below describe the benefits analysis conducted using the information developed by the time of plan development.

An integrated analysis of stormwater and dry weather runoff project benefits was performed using the project submittal database according to the water quality, water supply, flood management, environmental, and community needs of the Region. As previously discussed, project proponents were responsible for quantifying project benefits using the benefit metrics provided. Benefits from all stormwater and dry weather runoff projects across the watershed were aggregated through the analysis to assess the aggregated planning area water quality, water supply, flood management, environmental, and community benefits.

The SWRP projects submitted to the project database and their associated benefit categories addressed by project implementation are listed in **Table 9-9**. Many of the SWRP project benefits were unable to be quantified at the time of the analyses. As projects evolve from a conceptual planning phase to a point where they are ready to proceed, it can be assumed that project proponents will be able to measure SWRP benefits with greater specificity and accuracy. The sections below describe the integrated benefit analysis according to the five SWRP benefit categories. Additional projects opportunities identified for the IRWM/SWR planning area, not covered by submitted projects are also discussed.

Table 9-9: Stormwater Projects with Multiple Benefits

Project Name	Project Type	Water Quality Benefits	Water Supply Benefits	Flood Management Benefits	Environmental Benefits	Community Benefits
Thousand Palms Flood Control Project	Construction Project			X	X	
North Cathedral City Stormwater Master Plan	Construction Project			X	X	
East Side Dike Improvement Project - Phase I	Conceptual Design		X	X	X	
Trash Capture Systems	Other	X			O	
White Water Channel Extension to Connect with Current Salton Sea Water Level	Construction Project	O		O	X	O
St. Anthony Stormwater Capture Project	Construction Project	O		X	X	X
Coachella Monitoring Well Application and Project Study	Construction Project		O			X
Improvements for Existing Dry Well Located South of 52 Ave	Protection/ Restoration	O		O	O	X
Maxwell Installation	Construction Project	O	O	O		
Indio Stormwater Conveyance System 1	Construction Project	O	O	O		
Indio Stormwater Conveyance System 2	Construction Project	O	O	O		
Indio Stormwater Conveyance System 3	Construction Project	O	O	O		
Revitalize 20 Existing Dry Wells in Indio	Protection/ Restoration	O	O	O		
Jackson and Avenue 50 Retention Pond with Maxwell	Construction Project	O	O	O		
Avenue 48 Storm Drain in Indio	Construction Project	O	O	O		
Pierce Community Stormwater Project	Planning		O	O	O	O
Avenue 76 Community Stormwater Control Project	Planning		O	O	O	O
Stormwater Master Plan	Planning		O	O		

X = Claimed quantitative benefits; O = Claimed benefits, but no quantities.

Water Quality Projects Analysis

Potential water quality benefits provided by SWRP projects can include increased filtration and/or treatment of runoff, nonpoint source pollution control, and reestablished natural water drainage and treatment. Water quality improvements that reduce specific pollutants of concern in the Coachella Valley, such as pathogens, can support implementation of that bacterial indicator TMDL or reduction of other pollutants causing impairment of the CVSC. Projects with these benefits will help the Region address its related regional water quality objectives, including IRWM Objective F, further detailed in **Table 9-4** and *Chapter 6 Objectives, Section 6.3 Stormwater Resource Plan Benefits Prioritization*.

Project proponents may submit quantified water quality benefits into the project database, including pollutant load reduced (which varies by constituent), the volume of water treated, or the volume of water infiltrated (rather than discharging to the CVSC). Project proponents can specify pollutant load reduction for one or more of the following constituents: total suspended solids (TSS), total dissolved solids (TDS), Mercury, Diazinon, Chlorpyrifos, Selenium, Diuron, Fecal Coli/E. Coli Bacteria, Pyrethroids, Trash, Total Nitrogen, and any other specified pollutants. Individual project proponents may calculate these benefits using different tools or methodologies but would rely on the similar types of information. For example, in order to determine pollutant load reduction, project proponents would need to know information about stormwater quality, precipitation quantity, the volume of stormwater intercepted or treated by the project, and the amount of pollutant removal provided by the project.

At the time of the IRWM/SWR Plan development, 11 projects had noted water quality benefits as either main or additional benefits to their stormwater projects. These projects included 10 that will increase filtration or treatment of runoff and 10 that will reduce nonpoint source pollution, with some projects marking both as a benefit. The number of conceptual and ready to proceed projects that address these benefits is summarized in **Table 9-10**. The SWRP projects that will provide water quality benefits are identified in **Figure 9-4**.

Table 9-10: Water Quality Benefit Project Counts

Water Quality Benefits	Project Stage		Total
	Conceptual	Implementation	
Number of projects providing increased filtration and/or treatment of runoff	8	2	10
Number of projects providing nonpoint source pollution control	9	1	10
Total number of projects providing water quality benefits	**9**	**2**	**11**

Quantified water quality benefits from the projects submitted to the IRWM/SWR Plan were viewed collectively to estimate the watershed-wide pollutant load reductions. At the time of IRWM/SWR Plan development, only two projects had a quantified water quality benefits: the City of Indio's Trash Capture Systems project which is estimated to reduce the average annual trash loading from the Coachella Valley stormwater agencies by 50 pounds per year (lbs/yr) and the City of Coachella's Improvement of Existing Dry Well project is expected to remove 50% of TSS. Both the removal of trash and removal of TSS aid in reducing bacteria levels in runoff and will help address the SWRP water quality priority to meet bacterial indicator TMDL reductions. The bacteria reduction benefits will help the Region meet its IRWM Objective

F to preserve and improve surface water quality by reducing pollution in stormwater runoff in the Whitewater River Watershed.

While other projects highlighted pollutant removal as a project benefit, the loading reduction has not yet been quantified. These projects will reduce pollutant loading by retaining and infiltrating stormwater or reducing stormwater contact with dispersed pollutant sources. It is expected that additional measured water quality benefits will be quantified as more projects advance beyond conceptual design. The quantified water quality benefits over the watershed are summarized in **Table 9-11**.

Table 9-11: Water Quality Quantified Benefits

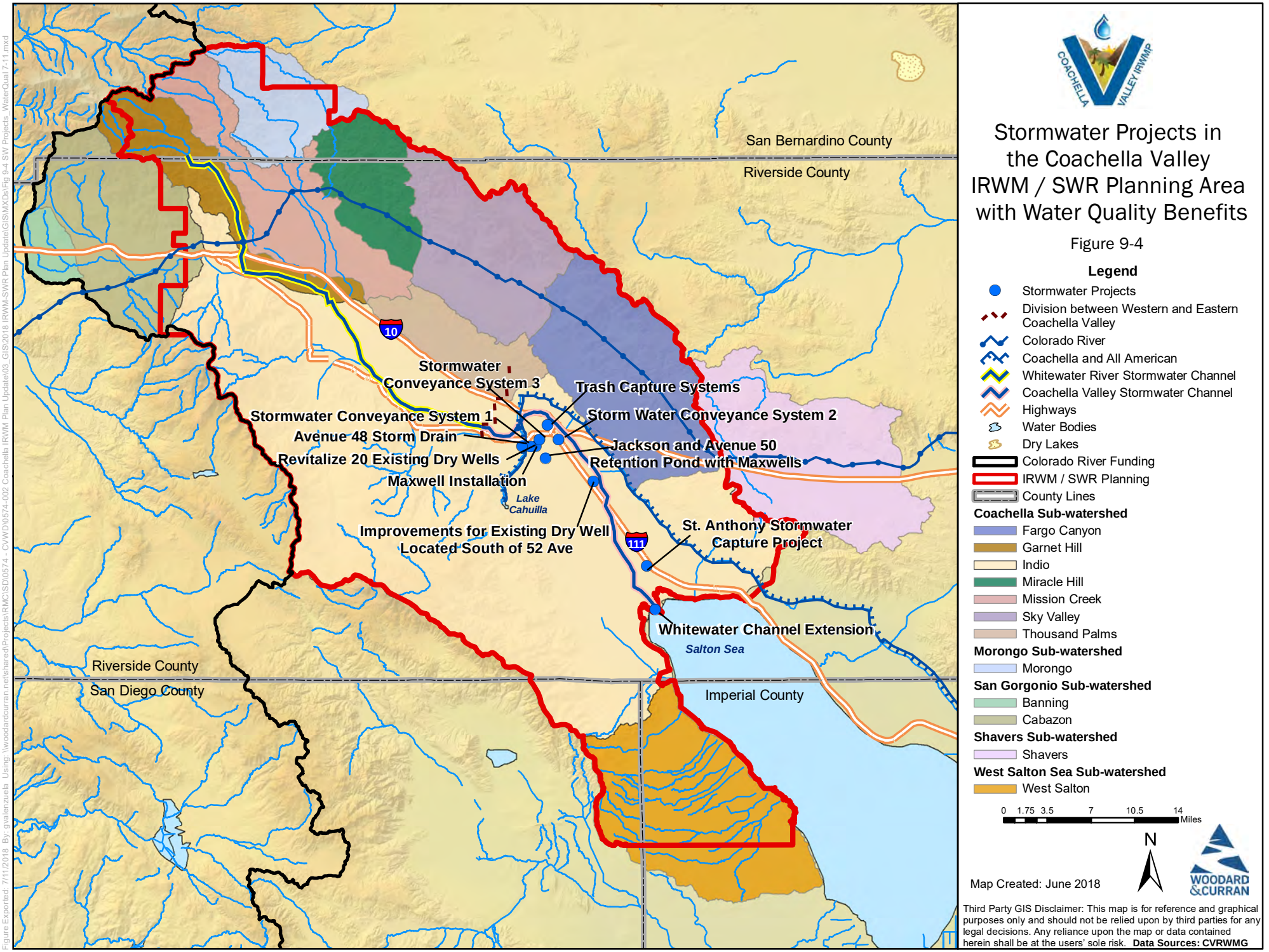
Water Quality Benefit	Total Quantified Benefit Over Watershed Area
Trash removed	50 lbs/yr
TSS removed	50% of existing TSS levels

Existing and Additional Project Opportunities

Source control and low impact development (LID) measures provide important opportunities for the Region to meet its stormwater water quality priorities and IRWM objectives. The discharge of potential pollutants in urban runoff is regulated under the Whitewater River Municipal Separate Storm Sewer Systems (MS4) permit. As part of permit compliance, Permittees are implementing measures to reduce stormwater pollutants using stormwater capture and onsite infiltration. For example, the City of Indio's Trash Capture Systems Project will install full capture trash devices in the storm drain inlets of the MS4 system. By preventing trash from entering the stormwater conveyance system, the project is also reducing the migration of other potential pollutants, such as bacteria, that could be transported with the trash. The City of Indio is also planning to implement several other projects that will reduce stormwater pollution by modifying conveyance structures, constructing retention facilities and providing infiltration features for groundwater recharge that will help reduce runoff volume in the watershed.

Riverside County Flood Control and Water Conservation District (RCFCWCD) has an ongoing, long-term project that was submitted to the IRWM/SWR Plan to assist the City of Coachella with the implementation of Best Management Practices (BMPs) to reduce and/or eliminate discharges of bacterial indicators from within the City of Coachella to the CVSC, which has been identified as impaired due to bacterial indicators. The City of Coachella has identified specific projects that can be implemented to achieve these goals. The projects include LID approaches to retrofitting urban areas, such as dry wells, infiltration swales and similar strategies. These LID retrofits provide opportunities to reestablish natural water drainage treatment and infiltration systems and other natural system functions that have been disrupted by development in the watershed. They can also provide source control of pollutants due to stormwater and dry weather runoff, onsite and local infiltration in urban areas, and use of storm water and dry weather runoff for vegetation.

Projects implementing stormwater BMPs to prevent stormwater and dry weather runoff pollution are provided by the RCFCWCD. Two handbooks accessible on the RCFCWCD's website outline the BMP and LID design criteria. The Riverside County Stormwater Quality Best Management Practices Design Handbook (2006) provides design procedures for structural BMPs for new development and redevelopment within Riverside County. Specific to the Whitewater River region, the Riverside County Whitewater River Region Stormwater Quality BMP Design Handbook for LID (2014) is another resource. The handbook provides selection and design guidance for stormwater BMPs for Priority Development Projects within the Whitewater River region of Riverside County while meeting the goals of LID, where feasible. IRWM/SWR Plan projects can utilize these resources to aid in BMP design.



Stormwater Projects in the Coachella Valley IRWM / SWR Planning Area with Water Quality Benefits

Figure 9-4

Legend

- Stormwater Projects
- Division between Western and Eastern Coachella Valley
- Colorado River
- Coachella and All American
- Whitewater River Stormwater Channel
- Coachella Valley Stormwater Channel
- Highways
- Water Bodies
- Dry Lakes
- Colorado River Funding
- IRWM / SWR Planning
- County Lines

Coachella Sub-watershed

- Fargo Canyon
- Garnet Hill
- Indio
- Miracle Hill
- Mission Creek
- Sky Valley
- Thousand Palms

Morongo Sub-watershed

- Morongo

San Gorgonio Sub-watershed

- Banning
- Cabazon

Shavers Sub-watershed

- Shavers

West Salton Sea Sub-watershed

- West Salton

0 1.75 3.5 7 10.5 14 Miles

N

Map Created: June 2018

WOODARD &CURRAN

Third Party GIS Disclaimer: This map is for reference and graphical purposes only and should not be relied upon by third parties for any legal decisions. Any reliance upon the map or data contained herein shall be at the users' sole risk. **Data Sources: CVRWMG**

Figure Exported: 7/11/2018 By: gvalenzuela Using: \\woodardcurran.net\shared\Projects\RMC\SD\0574 - CVWD\0574-002 Coachella IRWM Plan Update\03_GIS\2018 IRWM-SWR Plan Update\GIS\MXDs\Fig 9-4 SW Projects_WaterQual 7-11.mxd

Water Supply Projects Analysis

Water supply benefits provided by stormwater projects can include: increased water supply reliability, conjunctive use, and water conservation. In order to calculate benefits obtained from conjunctive use or groundwater recharge, project proponents would rely on information such as soil type and permeability, precipitation volume, aquifer characteristics, and groundwater pumping. The total benefit to the IRWM/SWR planning area is evaluated in terms of total increase in water supply provided by stormwater projects.

SWRP projects submitted to the IRWM/SWR Plan project database plan to capture and use stormwater primarily through direct groundwater recharge during storm events. Stormwater capture and use projects increase groundwater supply and local supply reliability, which help the Region meet its water supply reliability and conjunctive use objectives. This includes IRWM Objectives A, B, D and I (further detailed in **Table 9-4)**.

At the time of IRWM/SWR Plan development, 12 projects had noted water supply benefits as either main or additional benefits of their stormwater projects. These projects included eight that will provide water supply reliability, four that will provide conjunctive use, and one that benefits water conservation efforts. Some projects marked multiple water supply benefits. The number of conceptual and ready to proceed projects that address these benefits is summarized in **Table 9-12**. The SWRP projects that will provide water supply benefits are identified in **Figure 9-5**.

Table 9-12: Water Supply Benefit Project Counts

Water Supply Benefits	Project Stage		Total
	Conceptual	Implementation	
Number of projects providing water supply reliability	8	0	8
Number of projects providing conjunctive use	4	0	4
Number of projects providing water conservation	1	0	1
Total number of projects providing water supply benefits	**12**	**0**	**12**

The East Side Dike Improvement Project, facilitated by CVWD, is currently the only project that has quantified increases in groundwater recharge through stormwater capture. The project estimates an increase in water supply through direct groundwater recharge of 10,000 acre-feet per year (AFY). The supply benefit is based on modeling of the 100-year peak flow and flow routes to estimate the recharge volume. The total supply benefit is summarized in **Table 9-13**. Other stormwater capture and use projects are included in the IRWM/SWR Plan but are not yet developed enough to have a quantified estimates of supply increase.

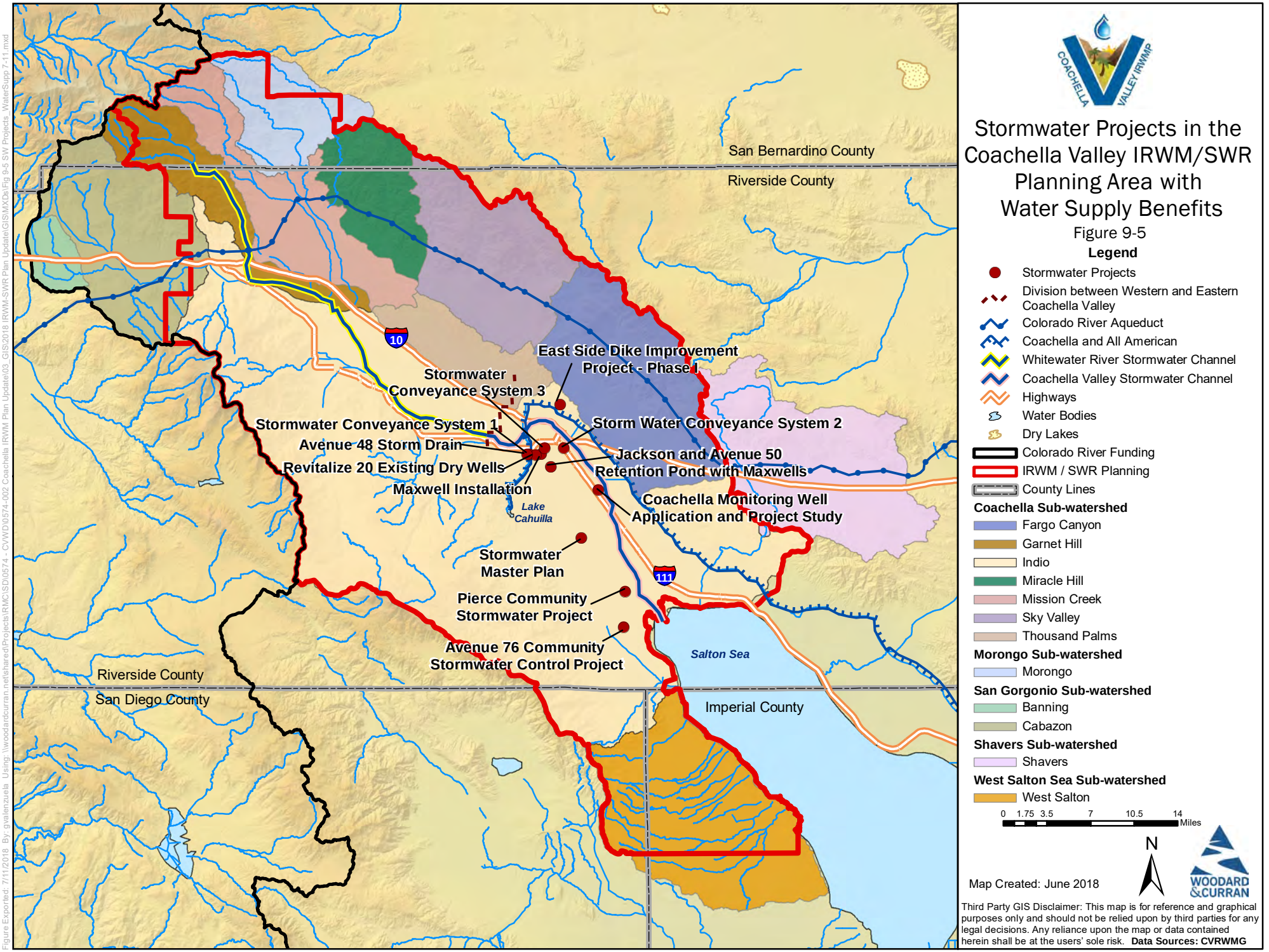
Table 9-13: Water Supply Quantified Benefits

Water Supply Benefit	Total Quantified Benefit Over Watershed Area
Increase in water supply through direct groundwater recharge	10,000 AFY

Existing and Additional Project Opportunities

Stormwater and dry weather runoff management can provide significant supply benefits by capturing storm flows for beneficial use. Supply augmentation opportunities through groundwater recharge are of high importance in the Region since groundwater is the primary water supply source and flooding is an issue in many areas. Projects that use diversions, retention basins, dry wells, and other capture and infiltration BMPs can beneficially reuse nuisance stormwater to reduce flooding while providing local supply.

Several projects were identified in the IRWM/SWR Plan that provide supply augmentation through groundwater recharge. For example, the City of Indio has worked to infiltrate storm water for many years, according to an ordinance that requires stormwater infiltration as part of city planning. Currently, the City of Indio is planning on implementing three projects that will augment local water supply through groundwater recharge, using retention ponds and dry wells. In addition, the Coachella Water Authority (CWA) plans to develop a stormwater improvement plan that will establish capital improvement projects that will decrease urban runoff issues and increase conjunctive use. Further opportunities to capture and infiltrate stormwater for groundwater recharge exist near the CVSC and through the Indio/Whitewater River Subbasin area, and are assessed in the Integrated Flood Management Planning Study included as **Appendix VI-I**.



Stormwater Projects in the Coachella Valley IRWM/SWR Planning Area with Water Supply Benefits

Figure 9-5

Legend

- Stormwater Projects
- Division between Western and Eastern Coachella Valley
- Colorado River Aqueduct
- Coachella and All American
- Whitewater River Stormwater Channel
- Coachella Valley Stormwater Channel
- Highways
- Water Bodies
- Dry Lakes
- Colorado River Funding
- IRWM / SWR Planning
- County Lines

Coachella Sub-watershed

- Fargo Canyon
- Garnet Hill
- Indio
- Miracle Hill
- Mission Creek
- Sky Valley
- Thousand Palms

Morongo Sub-watershed

- Morongo

San Gorgonio Sub-watershed

- Banning
- Cabazon

Shavers Sub-watershed

- Shavers

West Salton Sea Sub-watershed

- West Salton

0 1.75 3.5 7 10.5 14 Miles

N

Map Created: June 2018

WOODARD &CURRAN

Third Party GIS Disclaimer: This map is for reference and graphical purposes only and should not be relied upon by third parties for any legal decisions. Any reliance upon the map or data contained herein shall be at the users' sole risk. **Data Sources: CVRWMG**

Figure Exported: 7/11/2018 By: gvalenzuela Using: \\woodardcurran.net\shared\Projects\RMC\SD\0574 - CVWD\0574-002 Coachella IRWM Plan Update\03_GIS\2018 IRWM-SWR Plan Update\GIS\MXDs\Fig 9-5 SW Projects_WaterSupp 7-11.mxd

Flood Management Projects Analysis

Flood management is a priority in the IRWM/SWR planning area. Stormwater capture project flood management benefits include decreased flood risk by reducing runoff rate and/or volume as well as reduced sanitary sewer overflows. These benefits can be quantified through measures such as peak flow reduction, flood volume reduction, or reduced sanitary sewer overflows. Project proponents may conduct hydraulic modeling in order to determine the project's impact on the overall storm drainage and/or sanitary sewer system. Detailed information on the relevant infrastructure or watershed features, such as location and capacity, would likely also be needed to quantify flood management benefits.

The majority of stormwater projects in the IRWM/SWR Plan provide flood management benefits addressing IRWM Objective H (further detailed in **Table 9-4**) as well as other benefits such as groundwater recharge and pollutant load reduction. All the flood management projects submitted to the SWR Plan are located in high risk areas prone to regional flooding in the eastern Coachella Valley as shown in **Figure 9-6**. As described in *Chapter 2 Region Description*, in the eastern Coachella Valley, infiltration is inhibited due to an aquitard, which is composed of impervious clay layers. These geophysical characteristics, when combined with lacking stormwater infrastructure, generate flood hazards during intense rainfall events.

At the time of IRWM/SWR Plan development, 15 applicants had noted flood management benefits as a main benefit to their stormwater projects. All these projects will address flood management issues by decreasing flood risk in reducing runoff rate and/or volume. In addition, CWA's Stormwater Master Plan will also identify potential projects to reduce sanitary sewer overflow volumes. The number of conceptual and ready to proceed projects that address flood management benefits is summarized in **Table 9-14**. The SWRP projects that will provide flood management benefits are identified in **Figure 9-6**.

Table 9-14: Flood Management Benefit Project Counts

Flood Management Benefits	Project Stage		Total
	Conceptual	Implementation	
Number of projects decreasing flood risk by reducing runoff rate/volume	13	2	15
Number of projects reducing sanitary sewer overflows	1	0	1
Total number of projects providing flood management benefits	**13**	**2**	**15**

The integrated analysis of quantified flood management benefits was based on three metrics dealing with the reduction in runoff rate and volume: reduction in peak flow discharge, reduction in the volume of potential flood water, and reduction in sewer overflow volumes. Hydrology models and studies were used by the project proponents to quantify the flood management benefits. For projects that quantified these flood management benefits, benefits were aggregated across the watershed to examine the reduction in peak flow discharge, the total reduction in potential flood volume, and the reduction in potential sewer overflow volume at different project sites. While the peak flow discharge benefit was site-specific, the flood and sewer overflow volume reductions could be aggregated with other nearby projects as additional projects with quantified benefits are submitted to the SWRP. A summary of the quantified benefits across the watershed are summarized in **Table 9-15**.

Many of these flood management projects also provide water supply benefits through the retention and infiltration of groundwater to reduce flood flows. The supply benefits of these projects are discussed in

more detail in the water supply analysis section. The multiple benefits provided by all the projects are illustrated in **Table 9-9**.

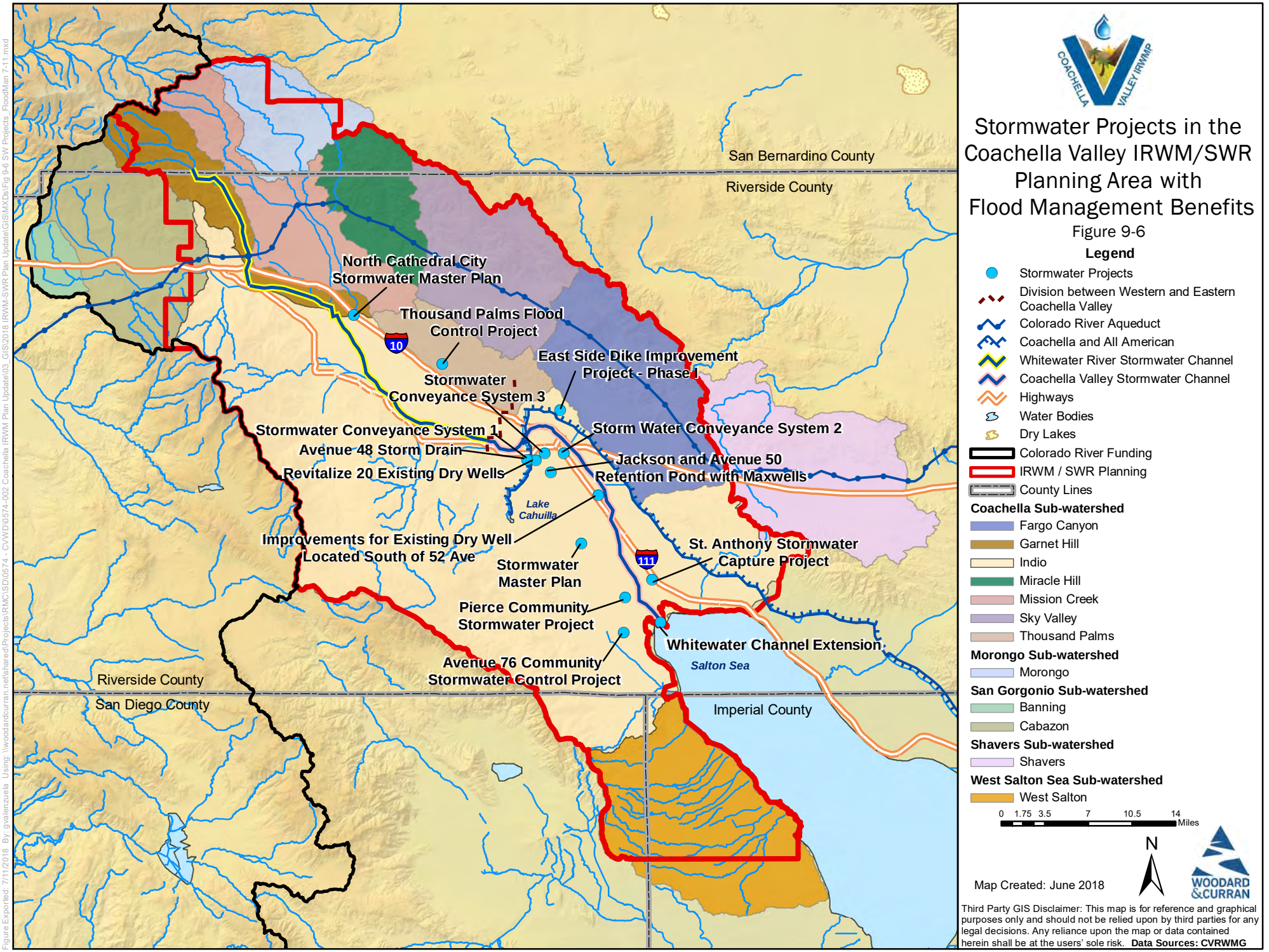
Table 9-15: Flood Management Quantified Benefits

Flood Management Benefit Metric	Total Quantified Benefit Over Watershed Area
Reduction in peak flow discharge	--
Thousand Palms Flood Control Project	19,000 cfs
North Cathedral City Stormwater Master Plan	36,000 cfs
East Side Dike Improvement Project – Phase I	12,000 cfs
St. Anthony's Stormwater Capture Project	33 cfs
Reduction in volume of potential flood water	3 AFY

Existing and Additional Project Opportunities

Additional project opportunities for multi-benefit integrated flood management were assessed in the Integrated Flood Management Planning Study included as **Appendix VI-I**. For the study, GIS mapping layers were used to screen the planning area for locations for the integrated flood management. The assessment looked for floodplain areas, highly permeable soils (hydrologic soil type A), areas overlying groundwater basins, areas with riparian vegetation or sensitive habitat area, and high sediment producing watershed areas. These initial mapping layers were overlaid to determine the locations where multiple occurrences of these five criteria occurred and were considered "opportunities." The more opportunities at a particular location then the more there was the possibility of achieving multiple flood management and water resources benefits (CVRWMG 2014).

Other considerations for flood management projects include opportunities to use existing publicly-owned lands and easements. Publicly owned lands can provide cost effective sites to implement stormwater projects, particularly larger-scale flood management and supply projects. There are several opportunities in the Region to use existing publicly owned lands such as parks, public open space, community gardens, farm and agricultural preserves, school sites, and government office buildings and complexes, to capture, clean, store, and use stormwater and dry weather runoff either onsite or offsite. For example, the Thousand Palms Flood Control Project would construct a series of levees and channels on public lands to protect a portion of the Thousand Palms and North Cathedral City from flooding. Projects that utilize public lands are included in the project list in **Appendix VI-H**.



Stormwater Projects in the Coachella Valley IRWM/SWR Planning Area with Flood Management Benefits

Figure 9-6

Legend

- Stormwater Projects
- Division between Western and Eastern Coachella Valley
- Colorado River Aqueduct
- Coachella and All American
- Whitewater River Stormwater Channel
- Coachella Valley Stormwater Channel
- Highways
- Water Bodies
- Dry Lakes
- Colorado River Funding
- IRWM / SWR Planning
- County Lines

Coachella Sub-watershed

- Fargo Canyon
- Garnet Hill
- Indio
- Miracle Hill
- Mission Creek
- Sky Valley
- Thousand Palms

Morongo Sub-watershed

- Morongo

San Gorgonio Sub-watershed

- Banning
- Cabazon

Shavers Sub-watershed

- Shavers

West Salton Sea Sub-watershed

- West Salton

0 1.75 3.5 7 10.5 14 Miles

N

Map Created: June 2018

WOODARD &CURRAN

Third Party GIS Disclaimer: This map is for reference and graphical purposes only and should not be relied upon by third parties for any legal decisions. Any reliance upon the map or data contained herein shall be at the users' sole risk. **Data Sources: CVRWMG**

Figure Exported: 7/11/2018 By: gvalenzuela Using: \\woodardcurran.net\shared\Projects\RMC\SD\0574 - CVWD\0574-002 Coachella IRWM Plan Update\03_GIS\2018 IRWM-SWR Plan Update\GIS\MXDs\Fig 9-6 SW Projects_FloodMan 7-11.mxd

Environmental Benefits Analysis

Environmental benefits provided by stormwater projects include improvements such as habitat protection and improvement, increased urban natural landscape and pervious surfaces, or reduced energy use, greenhouse gas (GHG) emissions or provides a carbon sink, reestablishment of the natural hydrograph, or water temperature improvements. Quantification methods used by project proponents for these benefits can vary due to the diversity of the benefits. A benefit such as increased urban green space may be relatively simple to calculate based on project design information. To calculate GHG emission reduction, a project proponent may need to determine the energy usage of the project compared to the existing conditions, the emissions factor for any energy sources, and estimates for carbon sequestration potential.

Stormwater projects in the planning area primarily provide habitat protection or improvement benefits in addition to flood management or water quality benefits. These stormwater projects will help the Region address environmental water management objectives (see **Table 9-4)** by improving habitat and increasing open space. Projects such as the St. Anthony Stormwater Capture Project will increase natural landscape and pervious surfaces in the watershed, while several flood management projects provide opportunities to protect or enhance habitat and open space and provide benefits to special status species. The Thousand Palms Flood Control Project, for example, will construct a series of levees and channels that will maintain a sand transport system for the Coachella Valley Fringe-Toed Lizard Preserve. Additionally, the North Cathedral City Stormwater Master Plan will construct improvements to convey a portion of the 100-year flood from the Morongo Wash to the Whitewater River Stormwater Channel (WRSC) which will improve wildlife connectivity and sand transports between the Willow Hole and Whitewater Floodplain Conservation Areas.

At the time of IRWM/SWR Plan development, nine projects had noted environmental benefits as main benefits to their stormwater projects. These projects included eight that will provide environmental habitat protection and improvement, and two that will increase urban natural landscape and pervious surfaces. Some projects marked both as benefits. The number of conceptual and ready to proceed projects that address environmental benefits is summarized in **Table 9-16.** The SWRP projects that will provide environmental benefits are identified in **Figure 9-7**.

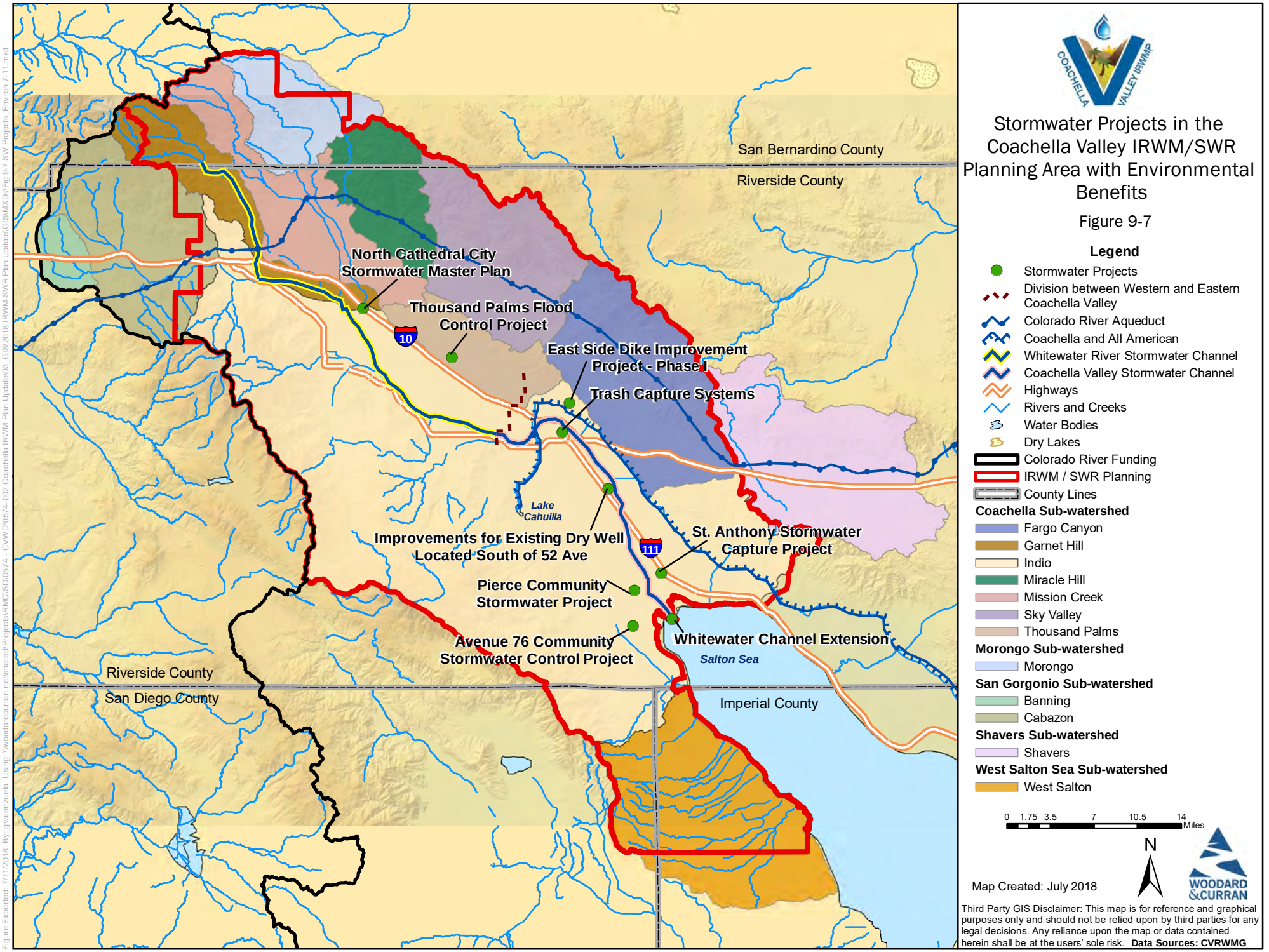
Table 9-16: Environmental Benefit Project Counts

Environmental Benefits	Project Stage		Total
	Conceptual	Ready to Proceed	
Number of projects providing environmental habitat protection and improvement	7	1	8
Number of projects providing increased urban natural landscape and pervious surfaces	1	1	2
Total number of projects providing environmental benefits	**7**	**2**	**9**

Projects submitted to the IRWM/SWR Plan quantified environmental benefits utilized two metrics: the area of habitat protected or improved by the project and the area of increase in urban natural landscape and pervious surfaces created by the project. **Table 9-17** summarizes the total acreages of improved habitat and increased natural landscape and pervious surfaces that will result in the watershed through implementing the projects.

Table 9-17: Environmental Quantified Benefits

Environmental Benefit Metric	Total Quantified Benefit Over Watershed Area
Size of habitat protected or improved	49,890 acres
Size of increase in urban natural landscape and pervious surfaces	2 acres



Stormwater Projects in the Coachella Valley IRWM/SWR Planning Area with Environmental Benefits

Figure 9-7

Legend

- Stormwater Projects
- Division between Western and Eastern Coachella Valley
- Colorado River Aqueduct
- Coachella and All American
- Whitewater River Stormwater Channel
- Coachella Valley Stormwater Channel
- Highways
- Rivers and Creeks
- Water Bodies
- Dry Lakes
- Colorado River Funding
- IRWM / SWR Planning
- County Lines

Coachella Sub-watershed

- Fargo Canyon
- Garnet Hill
- Indio
- Miracle Hill
- Mission Creek
- Sky Valley
- Thousand Palms

Morongo Sub-watershed

- Morongo

San Gorgonio Sub-watershed

- Banning
- Cabazon

Shavers Sub-watershed

- Shavers

West Salton Sea Sub-watershed

- West Salton

0 1.75 3.5 7 10.5 14 Miles

N

Map Created: July 2018

Third Party GIS Disclaimer: This map is for reference and graphical purposes only and should not be relied upon by third parties for any legal decisions. Any reliance upon the map or data contained herein shall be at the users' sole risk. **Data Sources: CVRWMG**

Figure Exported: 7/11/2018 By: gvalenzuela Using: \\woodardcurran.net\shared\Projects\RMC\SD\0574 - CVWD\0574-002 Coachella IRWM Plan Update\03_GIS\2018 IRWM-SWR Plan Update\GIS\MXDs\Fig 9-7 SW Projects_Environ 7-11.mxd

Community Benefits Analysis

Community benefits can include employment opportunities, public education, community involvement, and enhance and/or create recreational and public use areas. These benefits can be quantified using metrics such as number of jobs created, number of community participants, or number of outreach materials distributed. Community benefits are often formulated during the planning phases of projects. Quantification of community benefits would rely on organizer experience, rather than the types of modeling approaches typical for other benefit types.

Several projects and programs in the IRWM/SWR planning area include community benefits as part of stormwater project implementation. For example, the St. Anthony Stormwater Capture Project aims to enhance communities and public space while providing stormwater capture and infiltration benefits. Providing outreach materials, conducting public events and involving the local community in stormwater programs is an important component of stormwater project implementation. These project components will help the Region address its IRWM Objectives, including Objectives J, K, L, and M (further detailed in **Table 9-4)**.

At the time of IRWM/SWR Plan development, six projects had noted community benefits as either main or additional benefits to their stormwater projects. These projects included two that will provide employment opportunities, five that will provide public education, four that will contribute to community involvement, and five that will enhance and/or create recreational and public use areas. Some projects marked multiple community benefits. The number of conceptual and ready to proceed projects that address community benefits is summarized in **Table 9-18**. The SWRP projects that will provide community benefits are identified in **Figure 9-8**.

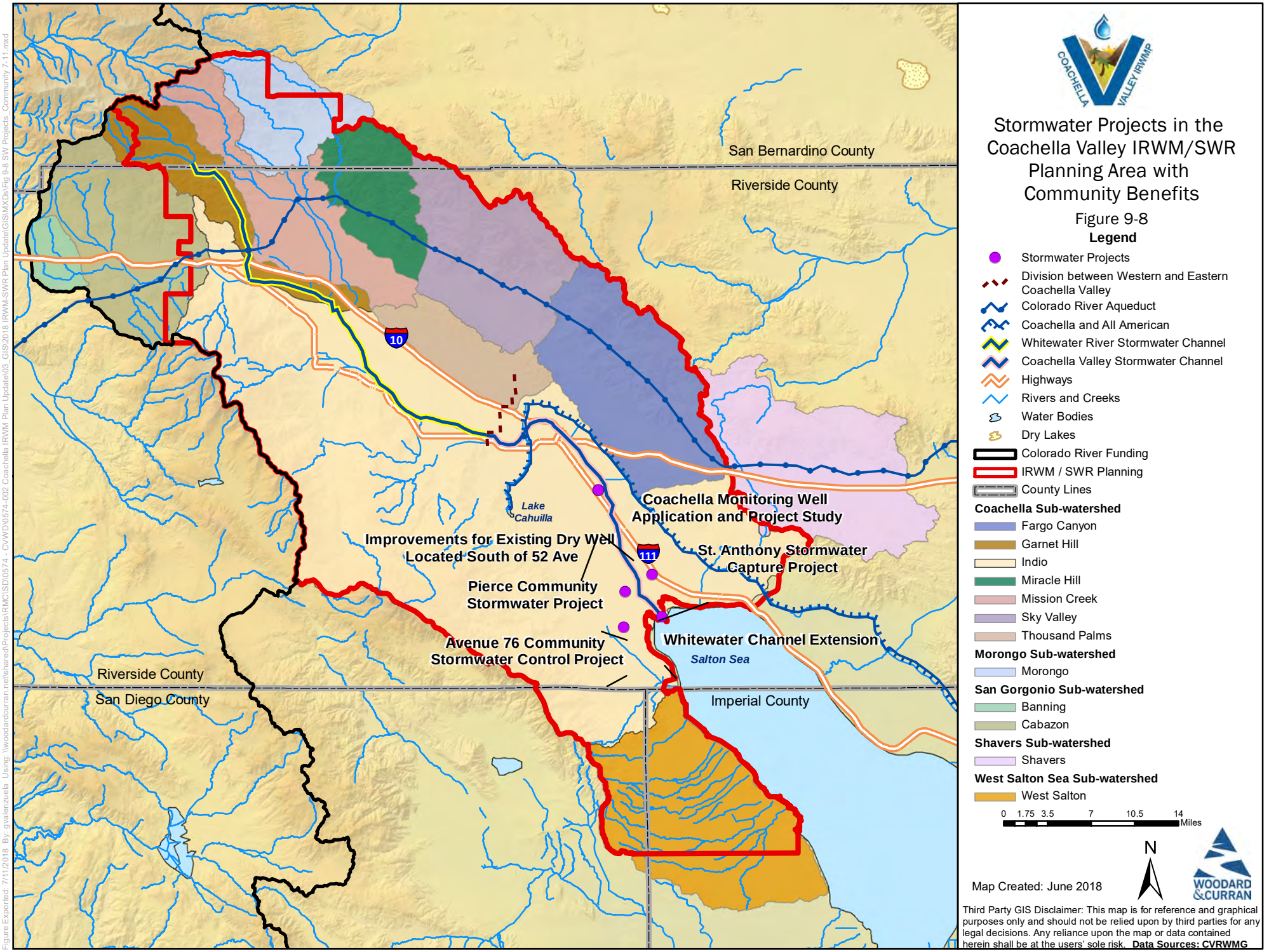
Table 9-18: Community Benefit Project Counts

Community Benefits	Project Stage		Total
	Conceptual	Implementation	
Number of projects providing employment opportunities	2	0	2
Number of projects providing public education	3	2	5
Number of projects providing community involvement	3	1	4
Number of projects enhancing/creating recreational and public use areas	3	2	5
Total number of projects providing community benefits	**4**	**2**	**6**

Some community benefits were quantified as part of the project submittal process using three metrics concerning public education, community involvement, and public recreational areas. **Table 9-19** summarizes the collective quantified community benefits over the watershed based on the submitted projects.

Table 9-19: Community Quantified Benefits

Community Benefit Metric	Total Quantified Benefit Over Watershed Area
Number of outreach materials provided or public education events conducted	20 outreach materials or events conducted
Number of community involvement participants per year	549 participants
Estimated visits per year to enhanced/created public recreational areas	240 visits



Stormwater Projects in the Coachella Valley IRWM/SWR Planning Area with Community Benefits

Figure 9-8

Legend

- Stormwater Projects
- Division between Western and Eastern Coachella Valley
- Colorado River Aqueduct
- Coachella and All American
- Whitewater River Stormwater Channel
- Coachella Valley Stormwater Channel
- Highways
- Rivers and Creeks
- Water Bodies
- Dry Lakes
- Colorado River Funding
- IRWM / SWR Planning
- County Lines

Coachella Sub-watershed

- Fargo Canyon
- Garnet Hill
- Indio
- Miracle Hill
- Mission Creek
- Sky Valley
- Thousand Palms

Morongo Sub-watershed

- Morongo

San Gorgonio Sub-watershed

- Banning
- Cabazon

Shavers Sub-watershed

- Shavers

West Salton Sea Sub-watershed

- West Salton

0 1.75 3.5 7 10.5 14 Miles

N

Map Created: June 2018

Third Party GIS Disclaimer: This map is for reference and graphical purposes only and should not be relied upon by third parties for any legal decisions. Any reliance upon the map or data contained herein shall be at the users' sole risk. **Data Sources: CVRWMG**

Figure Exported: 7/11/2018 By: gvalenzuela Using: \\woodardcurran.net\shared\Projects\RMC\SD\0574 - CVWD\0574-002 Coachella IRWM Plan Update\03_GIS\2018 IRWM-SWR Plan Update\GIS\MXDs\Fig 9-8 SW Projects_Community 7-11.mxd

Page intentionally left blank.

10 Agency Coordination

Integrated Regional Water Management (IRWM) Standards: *This chapter addresses the* ***Coordination Standard****, as well as the* ***Relation to Local Water Planning Standard*** *and the* ***Relation to Local Land Use Planning Standard****.*

Stormwater Resource Plan (SWRP) Requirements: *This chapter addresses* ***Organization, Coordination, and Collaboration,*** *including the Plan's relationship to other existing planning documents, ordinances, and programs as well as justification for individual agency participation.*

10.1 Agency Coordination

This Coachella Valley Integrated Regional Water Management (IRWM)/Stormwater Resource (SWR) Plan was developed in accordance with IRWM and SWR planning guidance developed by the California Department of Water Resources (DWR 2016) and by the State Water Resources Control Board (SWRCB 2015). During IRWM/SWR Plan development, the Coachella Valley Regional Water Management Group (CVRWMG) coordinated with the State through DWR staff participation in CVRWMG business meetings, Planning Partners and Issue Group meetings, and public workshops. During the process of integrating SWRP required components into the IRWM/SWR Plan, the CVRWMG coordinated with the SWRCB during Planning Partners meetings and public workshops. Implementation of the IRWM/SWR Plan requires coordination between the CVRWMG, project proponents, and several state and federal agencies, including regulatory agencies, land management agencies, and resource agencies. The CVRWMG also coordinates with local land use agencies, water agencies, and other organizations in implementing the IRWM/SWR Plan and preparing future IRWM/SWR Plan updates. Relevant coordination also exists between the IRWM programs and projects, and the Sustainable Groundwater Management Act (SGMA) actions and initiatives.

10.1.1 Coordination of Activities within IRWM Region

The IRWM/SWR planning process is intended to coordinate and share information concerning water supply and water quality, planning programs and projects, and to improve and maintain overall communication among the partners involved. The CVRWMG has gained support for the IRWM/SWR Plan through a proactive approach that implements public outreach and distributes information widely, as well as past success in securing grant funds for the Coachella Valley IRWM Region (Region). The CVRWMG has initiated a stakeholder outreach process to help support the development and adoption of an IRWM/SWR Plan. This outreach process is discussed in greater detail in *Chapter 7 Stakeholder Involvement*. Specifically, Chapter 7 contains detailed information regarding stakeholder coordination, public involvement,

participants involved in the planning process, outreach efforts, and outreach specifically pertaining to disadvantaged communities and tribal lands.

The IRWM/SWR planning process provides a mechanism for:

- Coordinating, refining, and integrating existing local water resources planning efforts within a comprehensive, regional context;
- Identifying specific regional priorities for implementation projects; and
- Generating funding support for the local plans, programs, projects, and priorities of existing agencies and stakeholders.

Outreach mechanisms used to improve general awareness of the Coachella Valley IRWM/SWR Plan and provide means for all interested parties to stay engaged during the planning process and plan implementation are mentioned below. The *Public Outreach and Involvement Plan* (see **Appendix VI-E**) is organized into the following components:

- Stakeholder Coordination and Public Involvement
- Disadvantaged Communities Outreach
- Tribal Outreach and Coordination

The IRWM/SWR Plan enables local project sponsors to upload their proposed projects and programs for both the IRWM grant program and stormwater grant program (SWGP) program to one combined online project database (http://cvrwmg.org/projects.php). The CVRWMG website also hosts all IRWM/SWR Plan deliverables and meeting agendas, materials, and notes for use by regional stakeholders. Through these mechanisms, Coachella Valley stakeholders have opportunities to combine activities and/or eliminate redundant efforts.

10.1.2 Neighboring and/or Overlapping IRWM/SWR Efforts

Agencies that may have existing or developing IRWM/SWR planning efforts that are adjacent to the Region are listed below. Of these regions, the Anza Borrego Desert IRWM Region, the Imperial Valley IRWM Region, the Mojave IRWM Region, and the San Gorgonio IRWM Region are located within the Colorado River Funding Area (CRFA), the same funding area within which the Coachella Valley IRWM Region is located. Refer to **Figure 10-1** for a graphical representation of the various neighboring IRWM Regions.

- Anza Borrego Desert IRWM Region, led by Borrego Water District (BWD)
- Imperial Valley IRWM Region, led by Imperial Irrigation District (IID)
- Mojave IRWM Region, led by Mojave Water Agency (MWA)
- San Gorgonio IRWM Region, led by the City of Banning and Riverside County
- Santa Ana Funding Area, including the Santa Ana Watershed Project Authority (SAWPA) IRWM Region

Hydrologic connections do not exist between the Whitewater River Watershed and the Coachella Valley Groundwater Basin, and drainage areas and aquifers of the aforementioned agencies, making their planning efforts different from Coachella Valley's planning efforts. Therefore, it is appropriate that these agencies' planning efforts remain separate from the Coachella Valley IRWM/SWR Plan. Even though the stakeholders do not overlap, and the surrounding planning regions are distinctly separate, the Coachella

Valley IRWM governance structure has established regular, formal coordination with the adjacent Regional Water Management Groups (RWMGs), referred to as the CRFA Partners meetings.

The RWMG agencies from neighboring IRWM regions within the CRFA have communicated and coordinated periodically. These IRWM regions are not connected hydrologically, but are within the jurisdiction of the Colorado River Basin Regional Water Quality Control Board (RWQCB) and anticipate coordinating on efforts such as salt and nutrient management planning. Neighboring RWMG and IRWM representatives have been invited to attend public meetings and workshops on the IRWM/SWR Plan, and representatives from the Anza Borrego and Mojave IRWM Regions have attended.

In October 2012, the CVRWMG coordinated with the RMWGs from the neighboring Mojave, Imperial, and Anza Borrego Desert IRWM Regions to set up a meeting amongst the regions to discuss possible IRWM-related collaboration opportunities. The first meeting was held at the Coachella Valley Water District (CVWD) on November 26, 2012 and included attendance from DWR. During this meeting, the RWMGs discussed the possibility of formally allocating future funding amongst the regions within the CRFA. In December 2012, the CVRWMG discussed a potential inter-regional funding allocation with the Planning Partners and the region's stakeholders determined that more thorough understanding of the other regions' proposed projects would be necessary before any formal allocation might be established. The purpose of this assessment would be to ensure that any grant funding awarded in the CRFA be given to projects that address water management issues for the greatest number of area residents. Following this recommendation from the Planning Partners, the RWMGs met again in December (via conference call) to discuss direction provided by their respective IRWM stakeholder groups. At this time, the RWMGs decided that they would continue to collaborate on planning efforts but would not pursue a formal funding area agreement.

In 2016, DWR released the Disadvantaged Community Involvement (DACI) Grant Program Request for Proposals (RFP), requiring all regions within each funding area to apply for the Proposition 1 grant funding jointly through one funding area application. The Coachella Valley, Mojave, and Imperial RWMGs began coordinating for this effort in April 2016. The Anza Borrego IRWM Region chose to opt out of the DACI solicitation, and the San Gorgonio IRWM Region was in the process of forming during the initial coordination. The three RWMGs involved began coordinating with the San Gorgonio IRWM Region following its conditional Regional Acceptance Process (RAP) application acceptance and was included in the revised application submitted to DWR in June 2017. The four IRWM Regions will continue to coordinate as necessary to fulfill the requirements of this funding program.

Anza Borrego Desert IRWM Region

BWD serves the desert community of Borrego Springs and is located in the Borrego Valley, an isolated region of San Diego County, 85 miles northeast of San Diego, California, and 60 miles southwest of Coachella, California. It is geographically separated from the Coachella Valley IRWM Region by the Santa Rosa Mountains, the Coyote Mountains, and the Coyote Creek Fault. BWD is the water service provider for the area and provides potable water to approximately 2,000 residential and commercial customers via deep wells and a pressurized distribution system. BWD also provides sewer service, flood control and gnat abatement to the community of Borrego Springs.

BWD's sole source of water is groundwater from the Borrego Valley Aquifer which has been in overdraft for approximately 60 years. In 2002, the BWD Board of Directors adopted a groundwater management plan to address the overdraft and associated issues. A hydraulic connection does not exist between the Coachella Valley Groundwater Basin and the Borrego Valley Aquifer, and the two planning areas are separated by

prominent geographical features. BWD's stakeholder groups do not overlap with Coachella Valley stakeholder groups. Because the two planning regions are so distinctly separate, it is appropriate that the two planning efforts should remain separate as well.

The Anza Borrego Desert IRWM Region was accepted through the RAP in 2009 and developed a draft IRWM Plan. This IRWM Plan was never finalized or formally adopted by the RWMG. The Anza Borrego IRWM Region has not participated in IRWM recent efforts. However, given the Anza Borrego Desert IRWM Region's location within the CRFA, the CVRWMG will continue to coordinate with this region as appropriate on water resources planning efforts and IRWM efforts that are relevant to the Colorado River Basin.

Imperial Valley IRWM Region

IID supplies water for the Imperial Valley, located at the southerly end of the Salton Sea in Imperial County. The Imperial Valley is geographically separated from the Coachella Valley IRWM Region by the Salton Sea. With more than 3,000 miles of canals and drains, IID is the largest irrigation district in the United States, and delivers up to 3.1 million acre-feet (AF) of IID's Colorado River water allotment annually to nearly one-half million irrigated acres. Of the water IID transports, approximately 97% is used for agricultural purposes. The remaining 3% of its water deliveries supply seven municipalities, one private water company and two community water systems as well as a variety of industrial uses and rural homes and businesses. IID's water supplies are independent of the Coachella Valley's water supplies. The Imperial Valley does not have a viable groundwater aquifer.

A hydraulic connection does not exist between the Coachella Valley Groundwater Basin and the Imperial Valley, and the two planning areas are separated by a prominent geographical feature, the Salton Sea. The stakeholder groups do not overlap. Because the issues of the two planning regions are so distinctly separate, it is appropriate that the two planning efforts should remain separate as well. Please refer to Exhibit 13 of the RAP (available at www.cvrwmg.org); letter dated April 28, 2009, from Mike King, Water Department Manager of the Imperial Irrigation District.

The Imperial IRWM Region was approved by DWR through the RAP in April 2010. Since then, the Imperial IRWM Region developed and adopted an IRWM Plan in October 2012. Given the Imperial Valley IRWM Region's location within the CRFA, the Coachella Valley IRWM Program will continue to coordinate with this region as appropriate on water resources planning efforts and IRWM efforts that are relevant to the Colorado River Basin.

Mojave IRWM Region

MWA is located in the Mojave Desert in San Bernardino County. Formed in 1960, MWA is responsible for managing groundwater resources in the Mojave River Basin and Morongo Basin, and providing alternate water sources to the region as needed to ensure a sustainable supply of water for present and future use. Only the southern portion of MWA is located within the CRFA. The region's southernmost boundary extends to the Yucca Valley area approximately 30 miles north of Palm Springs.

MWA is geographically separated from the Coachella Valley Groundwater Basin by the San Bernardino and Little San Bernardino Mountains except for a small portion of their boundary that overlaps the CVRWMG Management Region in the unpopulated mountains south of the Warren Valley Subbasin (Bulletin 118). MWA is responsible for implementing its service area adjudication. Most of the area served by MWA is experiencing severe groundwater overdraft. Since 1991, the MWA has been importing State Water Project (SWP) water from the California Aqueduct to recharge the groundwater basins from which

local water companies and other well owners derive water for all uses: domestic, agricultural, industrial and recreational. MWA has a 4,900 square mile service area and is governed by a seven-member elected Board of Directors.

The groundwater basins of MWA are not connected to the Coachella Valley Groundwater Basin and their imported water supplies are independent of the Coachella Valley's imported water supplies. The two planning areas are geographically separated by the San Bernardino and Little San Bernardino Mountains. The stakeholder groups do not overlap. It is appropriate, because the issues of the two planning regions are so distinctly separate, that the two planning efforts should remain separate as well. Please refer to Exhibit 11 of the RAP (available at www.cvrwmg.org); letter dated April 21, 2009, from Norman T. Caouette, Assistant General Manager of the Mojave Water Agency.

The Mojave IRWM Region developed its first IRWM Plan in 2004. The Mojave IRWM Region was approved by DWR during the 2009 RAP, and the region completed an update to its IRWM Plan in 2014. The update expanded upon the 2004 IRWM Plan with updated water management needs, issues, and strategies, as well as progress towards IRWM Plan goals and objectives. Given the Mojave IRWM Region's location within the CRFA, the CVRWMG will continue to coordinate with this region as appropriate on water resources planning efforts and IRWM efforts that are relevant to the Colorado River Basin.

San Gorgonio IRWM Region

The San Gorgonio IRWM Region is the newest region within the CRFA and is located to the northwest of the Coachella Valley IRWM Region. The San Gorgonio IRWM Region is located primarily in Riverside County, with a small portion located in San Bernardino County. The City of Banning, on behalf of the San Gorgonio RWMG, applied to be a separate region through submittal of a Proposition 1 Planning Grant and RAP application in September 2016. The San Gorgonio RWMG includes the City of Banning, Banning Heights Mutual Water Company, Cabazon Water District, High Valleys Water District, Riverside County Flood Control and Water Conservation District (RCFCWCD), and San Gorgonio Pass Water Agency (SGPWA). SGPWA is located northwest of and adjacent to the Coachella Valley IRWM Region, and is primarily located within the Santa Ana Funding Area, as well as the CRFA. Formed in 1961, SGPWA is a regional water agency that imports SWP water into the San Gorgonio Pass area, sells water to local water retailers, and helps protect groundwater basins within its region that extends from Calimesa to Cabazon through the Cities of Calimesa, Beaumont, and Banning, and the Riverside County areas from Cherry Valley to Cabazon. SGPWA is a water wholesaler governed by a five-member Board of Directors elected to four-year terms. SGPWA has been an active participant in the SAWPA IRWM Region. Because SGPWA is located in both the newly formed San Gorgonio IRWM Region and the SAWPA IRWM Region, it will continue to coordinate with and participate in both region's IRWM programs and planning efforts.

The groundwater basins of the San Gorgonio IRWM Region are separated from the Coachella Valley Groundwater Basin by geological features near Fingal Point, and their water supplies are independent of the Coachella Valley's imported water supplies. The two regions are separated by a political boundary and do not share customers. The stakeholder groups do not overlap. DWR conditionally accepted the San Gorgonio IRWM Region. In order to satisfy DWR's conditions, the CVRWMG and San Gorgonio RWMG coordinated and held a meeting on March 8, 2017 in order to address DWR's conditions and formally evaluate advantages and disadvantages of integrating the two regions. It was determined the two regions should remain separate, primarily because the Coachella Valley IRWM and San Gorgonio IRWM Regions encompass two distinct and separate water supply systems and therefore, have differing needs, issues, goals, and objectives. The CVRWMG and San Gorgonio RWMG submitted a joint letter to DWR on April 24,

2017 documenting the coordination efforts made by the two regions to address the San Gorgonio RAP conditions and the key reasons for remaining two separate regions.

DWR awarded the San Gorgonio IRWM Region with a Proposition 1 Planning Grant and the San Gorgonio RWMG is currently in the process of developing the region's first IRWM Plan. The IRWM Plan is anticipated to be complete in 2018. Given the San Gorgonio IRWM Region's location within the CRFA, the CVRWMG will continue to coordinate with this region as appropriate on water resources planning efforts and IRWM efforts that are relevant to the Colorado River Basin.

Figure 10-1: Adjacent IRWM Efforts

Santa Ana Water Project Authority IRWM Region

The Santa Ana Watershed Project Authority (SAWPA) IRWM Region is located in the Western Coachella Valley IRWM Region in one of the more densely populated watersheds in the state. The watershed is separated from the Coachella Valley by the newly formed San Gorgonio IRWM Region.

The SAWPA IRWM Plan was adopted in 2010 as the "One Water One Watershed" Plan. An update to the SAWPA IRWM Plan was adopted in 2014, which not only updated the 2010 IRWM Plan, but also lists recommended watershed level actions for implementation. SAWPA is currently in the process of updating the IRWM Plan, which is anticipated to be complete in 2018.

10.1.3 Coordination with Tribal, Federal, State, and Local Agencies

*This section complies with the **Organization, Coordination, Collaboration** requirements for the SWRP by outlining the local agencies and nongovernmental organizations consulted in IRWM/SWR Plan development and identifying required decision that must be made by regulatory agencies for IRWM/SWR Plan implementation.*

Key input to the 2010 IRWM Plan, the 2014 IRWM Plan Update, and the 2018 IRWM/SWR Plan Update has been provided to the CVRWMG through a series of Planning Partner meetings and contacts with DWR and SWRCB staff. Government agencies and sovereign tribal nations which have direct or significant water-related missions have been invited to participate in the Planning Partners meetings. Local agencies such as the County of Riverside, the RCFCWCD, U.S. Bureau of Indian Affairs (BIA), Coachella Valley Association of Governments (CVAG), and Colorado River RWQCB have an advisory role as Planning Partners.

Local Agencies

As the regional planning authority within the Coachella Valley, CVAG is involved in the Coachella Valley IRWM/SWR Plan as a member of the Planning Partners. The 2014 IRWM Plan Update was developed with input from various public works departments of cities throughout the Coachella Valley IRWM Region. The City of Cathedral City, the City of Coachella, the City of Desert Hot Springs, the City of Indio, the City of Palm Springs, the Coachella Valley Mosquito and Vector Control District, County of Riverside, and the Salton Community Services District are local agencies that have attended and participated in Planning Partners meetings during development of previous IRWM plan updates, as well as this 2018 IRWM/SWR Plan Update.

In addition to Planning Partners meetings, directed meetings were held in the fall of 2013 to gather additional input from local agencies on the 2014 IRWM Plan Update. A meeting was held with the County Planning Commission in October 2013 and December 2013, while meetings with CVAG, the RWQCB, the Stormwater Desert Task Force (Municipal Separate Storm Sewer System (MS4) Co-permittees), the Coachella Valley Irrigated Lands Coalition, and Desert Valley Builders Association were held in November 2013. A meeting was also requested with the Hi-Lo Desert Golf Superintendent Association to gain additional input for the 2014 IRWM Plan Update. The CVRWMG continued to hold Planning Partners

meetings and public workshops prior to and throughout the development of this 2018 IRWM/SWR Plan Update to encourage participation by the various local agencies.

The CVRWMG presented the 2018 IRWM/SWR Plan Update to the Desert Task Force, a group composed of the MS4 Co-Permittees, to engage stormwater stakeholders in the update process. The CVRWMG members that participate in these meetings continued to provide updates to the Desert Task Force, solicit input on the IRWM/SWR Plan Update, and advertise Planning Partners meetings. Agencies conforming the Desert Task Force also attend the Planning Partners meetings with regular updates on the IRWM/SWR Plan process.

Local agencies also coordinate for implementation of SGMA. Implementation of SGMA on the Mission Creek Subbasin will be done with coordination of CVWD, MSWD and DWA, which have already submitted the necessary declarations and documentation to DWR as it relates to the subbasin's Alternative Groundwater Sustainability Plan (GSP). Several CVRWMG agencies will coordinate for the implementation of SGMA in the Indio Subbasin.

State Agencies

The RWQCB is the primary state water quality regulatory authority within the Region, and is responsible for protecting beneficial uses and establishing and enforcing water quality standards within the Region. This IRWM/SWR Plan was developed in coordination with RWQCB staff as part of the Planning Partners and as part of the Salt and Nutrient Management Planning Issues Group and the Integrated Flood Management Issues Group (refer to *Chapter 7 Stakeholder Involvement* for more information), and targets achieving compliance with RWQCB water quality standards, stormwater discharge standards, non-point source regulations, and wastewater/recycled water regulations. Continued coordination with the RWQCB will be required to implement the IRWM/SWR Plan, and the RWQCB will be invited to continue participation in the Planning Partners meetings. A meeting with the RWQCB on the 2014 IRWM Plan Update was held in November 2013. Continued coordination with the RWQCB will be required to implement the IRWM/SWR Plan, and the RWQCB will be invited to continue participation in the Planning Partners meetings.

DWR establishes a framework for statewide water resources management within the *California Water Plan Update 2013* and is currently developing the *California Water Plan Update 2018*. Regional IRWM planning represents one of the key initiatives of the *California Water Plan Update 2013*. As such, DWR administers the State's IRWM Grant Program and has developed Statewide IRWM Grant Program Guidelines (July 2016). This IRWM/SWR Plan meets the Plan Standards established by DWR in the *2016 IRWM Guidelines*. The SWRCB administers the State's Stormwater Grant Program and has developed Statewide *SWRP Guidelines* (December 2015). This IRWM/SWR Plan also meets the Plan Standards established by SWRCB in the *2015 SWGP Guidelines*. The CVRWMG coordinated with DWR and SWRCB in developing the IRWM/SWR Plan through participation in Planning Partner meetings and public workshops. Continued coordination with DWR and SWRCB will occur to implement the IRWM/SWR Plan and seek sources of funding to assist in financing proposed projects.

Implementation of the IRWM/SWR Plan and priority projects may also require coordination with several additional State agencies, who have been invited to participate in the IRWM/SWR planning process through their inclusion in the IRWM stakeholder list or through their involvement in IRWM Plan or SWRP projects (refer to *Chapter 7 Stakeholder Involvement*).

- **California Environmental Protection Agency (CalEPA).** CalEPA oversees and coordinates public health and environmental regulation within six State of California departments: Air Resources Board, Department of Pesticide Regulation, Department of Toxic Substances Control, Integrated Waste Management Board, Office of Environmental Health Hazard Assessment, and the State Board.
- **California Department of Fish and Wildlife (CDFW).** CDFW oversees implementation of the federal Endangered Species Act and regulates activities that may impact endangered species and their habitats.
- **California State Parks.** California State Parks operates a number of state beaches, state parks, and coastal preserves and recreational areas within the Region.
- **California Department of Forestry.** California Department of Forestry is charged with fire-fighting, resource management (including administering state and federal forestry assistance programs), and protecting and enhancing California's forest lands.
- **California Department of Transportation (Caltrans).** Caltrans is responsible for planning, maintaining, and constructing surface transportation facilities including highways, roads, bike paths, bridges, and rail transportation facilities. Caltrans addresses land use, air, and water quality impacts of such surface transportation facilities.
- **California Natural Resources Agency (CNRA).** CNRA manages the California Adaptation Strategy process, which summarizes the best known science on climate change impacts and provides recommendations on how to manage against potential climate change threats.
- **California State Lands Commission (CSLC)**. The CSLC oversees lands held in public trust. In this capacity, the CSLC manages a variety of public lands, including submerged lands under tidal and navigable waterways. The CSLC is also involved in securing and maintaining public access to public lands.

Federal Agencies

Implementation of the IRWM/SWR Plan and priority projects may also require coordination with multiple federal agencies. Federal agencies that regulate water management planning and/or land management within the Region include the following. As explained in *Chapter 7 Stakeholder Involvement,* several federal agencies are included in the IRWM stakeholder list and invited to participate in the IRWM/SWR Plan.

- **U.S. Environmental Protection Agency (USEPA):** USEPA, through powers delegated to the RWQCB, implements the Clean Water Act and oversees RWQCB and State Board's implementation of federal NPDES permits, water quality standards, water quality enforcement, and water quality certification programs.
- **U.S. Fish and Wildlife Service (USFWS).** USFWS oversees implementation of the federal Endangered Species Act and regulates activities that may impact endangered species and their habitats.
- **U.S. Army Corps of Engineers (USACE).** The USACE has regulatory authority over all work within navigable waters, and regulates such projects through the issuance of permits. Additionally, the USACE reviews and approves Special Area Management Plans (SAMPs). With this background, the USACE can provide valued input to the Region's water management planning process.

- **U.S. Geological Survey (USGS).** USGS collects and analyzes regional hydrologic data, and coordinates with local agencies to perform special water resources studies.
- **U.S. Bureau of Land Management (BLM).** BLM manages federal lands within the Region, including lands proposed as future Wilderness Areas.
- **U.S. Forest Service (USFS).** USFS manages the San Bernardino National Forest, which comprises a significant portion of the upstream reaches of the larger watersheds of the Region.
- **Natural Resources Conservation Service.** The Natural Resource Conservation Service, a division of the U.S. Department of Agriculture, provides technical and financial assistance in a variety of areas related to the conservation of soil, water, and other natural resources.
- **U.S. Bureau of Reclamation (USBR).** USBR is involved in a variety of water resources management areas central to the IRWM/SWR Plan, including water supply, the reclamation of land and water resources, surface water storage, desalination, recreation, agricultural land stewardship, and water rights. USBR also administers funding for the Reclamation Wastewater and Groundwater Study and Facilities Act (Title XVI, Public Law 102-575).
- **U.S. Bureau of Indian Affairs (BIA).** The BIA administers and manages lands held in trust for the Region's Native American Tribes.
- **U.S. Department of Agriculture (USDA).** USDA provides leadership on agriculture, natural resources, rural development, and related issues. USDA administers funding for the Rural Economic Development Loan and Grant Program.

Federal regulatory agencies will continue to be invited to provide input to the Region's IRWM/SWR planning process. BIA and USDA have been regular participants in the IRWM Program and IRWM/SWR planning process. Coordination between the CVRWMG, project sponsors, and these agencies will be required to address regulatory compliance and permitting issues.

Tribal Nations

Implementation of the IRWM/SWR Plan and priority projects may also require coordination with multiple Tribal Nations. As explained within *Chapter 5 Tribal Water Resources,* there are seven Tribal Nations within or in proximity to the IRWM Region, five of which are involved with the Coachella Valley IRWM Program. As also explained in *Chapter 5 Tribal Water Resources*, the Region's Tribal Nations are IRWM stakeholders that coordinate with the CVRWMG on IRWM/SWR planning efforts in multiple ways.

Tribal Nations will continue to be invited to provide input to the Region's IRWM/SWR Plan and IRWM planning process. For example, the Proposition 84-Round 2 and Round 4 Implementation Grants (which were awarded full funding) include projects that would directly benefit the Torres-Martinez Tribal Nation by funding design and engineering work for a water main extension to the Avenue 54 Housing Subdivision, and design and engineering work to connect CVWD's municipal sewer system to the Avenue 64 Housing Subdivision. IRWM projects that take place on Tribal lands such as the Torres-Martinez Avenue 54 Housing Subdivision Project and the Torres-Martinez Septic to Sewer Conversion Program will continue to be monitored and reviewed by DWR as required by the provisions of the Proposition 84 Implementation Grant contract.

Information about the Tribal Nations' water resources and planning efforts are provided below; more details about each tribe are included in *Chapter 5 Tribal Water Resources.*

- **Agua Caliente Band of Cahuilla Indians.** The Planning and Natural Resources Division of the Agua Caliente Tribe's Planning and Development Department manages land and water resources of the reservation and has agreements with local jurisdictions to ensure that general planning documents include land use and zoning projections for the Tribe.
- **Augustine Band of Mission Indians.** The Augustine Tribe manages onsite water provision to its reservation via onsite groundwater wells and is also considered a leader in the area of renewable energy.
- **Cabazon Band of Mission Indians.** The Cabazon Tribe operates several local onsite services (fire, police, etc.), but is connected to municipal systems for drinking water. Some of the Tribe's property is also connected to municipal sewer systems, but tribal housing is reliant on onsite (septic) wastewater systems.
- **Torres-Martinez Desert Cahuilla Indians.** The Torres-Martinez Tribe is the largest private landowner in and around the Salton Sea and has implemented a shallow wetlands pilot project consisting of seven water quality cells and four habitat ponds that were designed to improve the quality of water entering the Salton Sea through biofiltration. Torres-Martinez tribal lands generally rely on onsite water and wastewater systems for provision of water and sewer services, but the Tribe is working with CVWD, BIA, and other entities to connect some tribal lands to the municipal system.
- **Twenty-Nine Palms Band of Mission Indians.** Although the Twenty-Nine Palms Tribe receives water and sewer services from CWA, they conduct onsite groundwater monitoring and environmental protection programs. The Tribe's environmental protection programs are run by the Twenty-Nine Palms Band of Mission Indians Tribal Environmental Protection Agency, which was established in partnership with the U.S. Environmental Protection Agency in 1997.

10.1.4 Coordination for the SWRP

*This section complies with the **Organization, Coordination, Collaboration** requirements for the SWRP by outlining the local agencies, nongovernmental organizations, and community participants consulted in IRWM/SWR Plan development, identifying agencies that need to participate in order to address the runoff management objectives of the IRWM/SWR Plan, discussing public engagement efforts in IRWM/SWR Plan development, and describing the planning and coordination of existing local governmental agencies.*

Stormwater resource planning and implementation requires collaboration between local agencies, nongovernmental organizations, water utilities, and communities to ensure efficient and effective management of stormwater and dry weather runoff. The CVRWMG has taken a proactive approach to identify and coordinate with relevant local agencies and nongovernmental organizations that have stormwater management responsibilities or planning interests in the Region. As described in previous sections, these entities, including the county, cities, regional flood control districts, state and federal agencies, Tribal Nations, and nongovernmental organizations were identified early in the IRWM planning process as stakeholders, and have collaborated often during development of the IRWM/SWR Plan through Planning Partners meetings and public workshops.

Many of the Planning Partners for the Region have resource management responsibilities that can be leveraged to implement stormwater or dry weather capture projects and programs that offer multiple

benefits. Examples of potential groups include water purveyors who can benefit from the supplies gained from stormwater and dry weather runoff capture, and public land managers who can provide land for stormwater project implementation. These Planning Partners and other key stakeholders were coordinated with during the IRWM/SWR Plan update to ensure their stormwater management priorities and projects were considered. **Table 10-1** identifies some of the key Planning Partners with stormwater and dry weather runoff interests that were coordinated with during IRWM/SWR Plan development, as well as their management roles. Additional details about stakeholder coordination for the IRWM/SWR Plan are provided in *Chapter 7 Stakeholder Involvement.*

Table 10-1: Agency Coordination for Stormwater Resource Planning

Agency/Organization	Responsibilities	Coordination during Plan Development
Riverside County Flood Control and Water Conservation District	Flood control and stormwater quality management agency and Principal Permittee of the 2013 Whitewater River MS4 Permit	Member of the Integrated Flood Management Issues Group
County of Riverside	Land management agency and Principal Permittee of the 2013 Whitewater River MS4 Permit	Member of the Integrated Flood Management Issues Group
City of Desert Hot Springs	Land management agency and co-permittee of the 2013 Whitewater River MS4 Permit	Member of the Integrated Flood Management Issues Group
City of Indian Wells	Land management agency and co-permittee of the 2013 Whitewater River MS4 Permit	Member of the Planning Partners
City of Palm Springs	Land management agency and co-permittee of the 2013 Whitewater River MS4 Permit	Member of the Integrated Flood Management Issues Group
City of Cathedral City	Land management agency and co-permittee of the 2013 Whitewater River MS4 Permit	Member of the Integrated Flood Management Issues Group
City of Indio / Indio Water Authority	Land management agency and co-permittee of the 2013 Whitewater River MS4 Permit; Water purveyor in the region	Member of the CVRWMG; Member of the Integrated Flood Management Issues Group
City of Rancho Mirage	Land management agency and co-permittee of the 2013 Whitewater River MS4 Permit	Member of the Planning Partners
City of Coachella / Coachella Water Authority	Land management agency and co-permittee of the 2013 Whitewater River MS4 Permit; Water purveyor in the region	Member of the CVRWMG; Member of the Integrated Flood Management Issues Group
City of La Quinta	Land management agency and co-permittee of the 2013 Whitewater River MS4 Permit	Member of the Planning Partners

Agency/Organization	Responsibilities	Coordination during Plan Development
Coachella Valley Water District	Flood control and stormwater quality management agency, and water purveyor in the region and co-permittee of the 2013 Whitewater River MS4 Permit	Member of the CVRWMG; Member of the Integrated Flood Management Issues Group
Desert Water Agency	Water purveyor in the region	Member of the CVRWMG; Member of the Integrated Flood Management Issues Group
Mission Springs Water District	Water purveyor in the region	Member of the CVRWMG
Myoma Dunes	Private water company in the region	Member of the Planning Partners

All Permittees of the Whitewater River MS4 Permit collaborated during development of the stormwater resource management components of the IRWM/SWR Plan, with the exception of the City of Banning. The City of Banning, while named as a co-permittee on the MS4 Permit, does not share an interconnected MS4 with the remainder of the Permittees and discharges to the San Gorgonio River, outside the region boundaries of this IRWM/SWR Plan. The City of Banning is part of the neighboring San Gorgonio IRWM Region and some coordination has occurred through the IRWM/SWR Plan.

In addition to public agencies and nongovernmental organizations, the CVRWMG provided opportunities for community participation in IRWM/SWR Plan development and implementation of the IRWM Program. The CVRWMG developed and implemented a public outreach plan to involve all interested stakeholders, communities, and members of the general public. All interested parties were invited to maintain coordination throughout the process, and participate and provide feedback on the draft IRWM/SWR Plan through public meetings and workshops. The CVRWMG made an effort to increase community participation and public engagement by holding public meetings in a central location within the Region. Additionally, the CVRWMG maintains a website for the IRWM Program where stakeholders have access to newsletters, press releases, correspondences, and an online project database for both IRWM and SWRP projects, which enhances CVRWMG's ability to inform the public about stormwater resource planning approaches through concrete project examples. Additional information about stakeholder outreach and public participation during Plan development and implementation is described in *Chapter 7 Stakeholder Involvement.*

10.2 Relation to Local Water Planning

***IRWM Standards**: This section complies with the **Relation to Local Water Planning Standard**, to ensure the IRWM Plan is congruent with local plans, and that the Plan includes current, relevant elements of local water planning and water management issues common to multiple local entities in the Region.*

***SWRP Requirements:** This section complies with the **Organization, Coordination, Collaboration** requirements for the SWRP by describing the relationship of the SWRP to other existing planning documents, ordinances, and programs established by local agencies.*

Local water planning activities in the Coachella Valley are mainly conducted by the six CVRWMG partners: CWA, CVWD, DWA, IWA, VSD, and MSWD. These agencies coordinate regularly at both management and staff levels by participating in Joint Board meetings, CVRWMG business meetings, and other specialized efforts such as those conducted for the *Regional Water Conservation Program* (a regional conservation project funded through the IRWM Program that involves coordination of conservation efforts across the CVRWMG agencies). Additionally, some partners meet periodically in joint session with local land use agencies (see *Section 10.3 Relation to Local Land Use Planning* below). The CVRWMG partners also provide each other with on-going opportunities to review and comment on the plans and studies described in this section. As applicable, the IRWM/SWR Plan incorporates water management issues and climate change adaptation and mitigation strategies from these local plans.

Primary water management plans for the Coachella Valley include the following:

- Coachella Valley Water Management Plan (WMP), which was originally prepared by CVWD, DWA, and IWA, and updated by CVWD (January 2012).
- Mission Creek-Garnet Hill WMP, which was prepared by CVWD, DWA, and MSWD (January 2013).
- Coachella Valley Basin GSPs - Alternative GSP Bridge Documents for the Indio and Mission Creek Subbasins (December 2016).

Additional water planning activities are carried out by other agencies as follows:

- The nine Coachella Valley cities and the County of Riverside have jurisdiction over local drainage within their service area boundaries. Local drainage is typically routed to existing regional facilities. Where regional facilities are not available, local drainage flows to dry wells or retention basins.
- The RCFCWCD has regional flood control jurisdiction within its service area boundary in the Desert Hot Springs and Palm Springs areas of the Coachella Valley. CVWD has regional flood control jurisdiction for the rest of the Region. CVWD and RCFCWCD each have included the impacts of flood flows in the design capacities of their regional facilities and each utilizes their own permit approval processes for accepting additional flows from local drainage activities.
- The City of Palm Springs is responsible for wastewater collection and treatment within their service area boundaries. The City of Palm Springs delivers treated effluent to DWA for recycling and distribution to golf courses, parks, medians, and other areas for irrigation.

In addition to the Coachella Valley IRWM/SWR Plan planning effort, several key water planning efforts have been completed since the 2014 IRWM Plan or are currently being developed:

- 2015 Urban Water Management Plan (UWMP) Updates have been completed by each of the five water purveyors.
- Whitewater River Region Stormwater Management Plan, which involves RCFCWCD, County of Riverside, and the co-permittees (City of Banning, City of Cathedral City, City of Coachella, City of Desert Hot Springs, City of Indian Wells, City of Indio, City of La Quinta, City of Palm Desert, City of Palm Springs, City of Rancho Mirage, and CVWD) (January 2015).
- Coachella Valley Groundwater Basin Salt and Nutrient Management Plan was prepared in compliance with the State of California Water Resource Control Board Recycled Water Policy to manage salts and nutrients on a basin-wide basis, while encouraging recycled water use. The Plan, prepared for CVWD, DWA, and IWA, was completed in June 2015.

The CVRWMG has coordinated the aforementioned efforts with the IRWM/SWR Plan development to ensure that the IRWM/SWR Plan content and its associated SWRP components are consistent with regional planning efforts, updates are incorporated, and that strategies synchronized. These and other related water planning efforts are briefly described in the following sections and are listed in **Table 10-2**.

The Coachella Valley WMP, Mission Creek and Garnet Hill Subbasins WMP, IRWM/SWR Plan, and UWMPs provided the basis for development of accurate and consistent Water Supply Assessments (WSAs) for the Region. They also provided the opportunity for developing partnerships between agencies and stakeholders for other water management activities such as water recycling, source substitution, recharge programs, and conservation. CVWD has worked to coordinate its planning efforts and ensure consistency between the Mission Creek-Garnet Hill WMP and the Coachella Valley WMP Update.

10.2.1 Water Supply Planning and Groundwater Management

Effective, integrated, and consistent water planning and management is imperative to ensuring water supply reliability in the Coachella Valley. The CVRWMG is committed to ongoing coordination between the IRWM/SWR planning efforts and other regional planning efforts, including SGMA.

The following water supply and groundwater planning documents provided the foundation for *Chapter 2 Region Description* and *Chapter 3 Issues and Needs* of this IRWM/SWR Plan. The IRWM/SWR Plan is consistent with and reflects the technical assessments and conclusions provided within these plans; the technical evaluations in these plans provided a basis for establishment of the regional priorities. Updates to these plans will be incorporated by the CVRWMG into future IRWM/SWR Plan updates. Planning documents listed below are the most current and relevant studies completed by the agencies.

Coachella Valley Water Management Plan

In 2002, CVWD adopted the Coachella Valley WMP and certified the final Program Environmental Impact Report (PEIR) (CVWD 2002). The Coachella Valley WMP and the PEIR were updated in 2010. The goal of the Coachella Valley WMP is to assure adequate quantities of safe, high-quality water at the lowest cost to Coachella Valley water users by stabilizing groundwater overdraft, maximizing conjunctive use opportunities, and minimizing adverse economic and environmental impacts. The *2010 Coachella Valley WMP* defines how the goals established in the *2002 Coachella Valley WMP* will be met given changing conditions and refines the objectives to reflect projected changes and uncertainties. The *2010 Coachella*

Valley WMP evaluates the reliability of water supplies identified in the 2002 Coachella Valley WMP and evaluates the performance of the *2002 Coachella Valley WMP*. The *2010 Coachella Valley WMP* refines the preferred alternative presented in the *2002 Coachella Valley WMP* through continuation and expansion of programs to reduce groundwater overdraft through water conservation, supply development, groundwater recharge, and source substitution. It also recommends new programs to implement, including increased use of non-potable supplies, reduction in loss of non-potable water, increased groundwater recharge and storage, increased treatment levels for groundwater, salt and nutrient management plan and brine disposal, and drainage control. The *2010 Coachella Valley WMP* implementation plan incorporates balance and flexibility to achieve the WMP objectives, and aims for a supply buffer that will serve as a contingency.

The City of Coachella Water Authority, CVWD, IWA, and DWA have public water systems that rely on groundwater in the Coachella Valley WMP planning area. Each of these agencies has relied on the data provided in the Coachella Valley WMP for development of their UWMPs. These agencies have provided input on the WMP and participate in some of the Coachella Valley WMP projects and programs or have developed similar programs that implement elements of the WMP. Further, the Coachella Valley WMP considers buildout projections on tribal reservation lands in order to have a complete understanding of current and future impacts on the groundwater basin. CVWD coordinated with tribal representatives to incorporate tribal buildout projections into Coachella Valley WMP modeling and analysis.

Mission Creek-Garnet Hill Water Management Plan

The Mission Creek and Garnet Hill Subbasins of the Coachella Valley Groundwater Basin lie north of the Banning Fault and outside the area included in the Coachella Valley WMP. CVWD and MSWD have public water systems that rely on groundwater from the Mission Creek Subbasin, and MSWD has production facilities in the Garnet Hill Subbasin. CVWD and DWA have groundwater replenishment authority for this region and conduct an active recharge program utilizing SWP Exchange Water delivered by MWD's Colorado River Aqueduct via an Exchange Agreement (refer to *Chapter 2 Region Description* for more information). In December 2004, MSWD, CVWD, and DWA signed a Settlement Agreement, in which the agencies agreed to jointly prepare a WMP for the Mission Creek and Garnet Hill Subbasins. The *Mission Creek-Garnet Hill WMP* was completed in January 2013 and has been adopted by CVWD, DWA, and MSWD. The purpose of this WMP is to manage the water resources to reliably meet demands and protect water quality in a sustainable and cost-effective manner. The water management objectives defined in the WMP are:

- Meet water demands with a 10% supply buffer,
- Eliminate groundwater overdraft,
- Manage and protect water quality,
- Minimize environmental impacts,
- Comply with state and federal laws and regulations, and
- Manage future costs.

Public meetings were conducted to solicit input during development of the *Mission Creek-Garnet Hill WMP*. The WMP describes the water supplies and uses of the Mission Creek and Garnet Hill Subbasins, identifies issues facing the subbasins and their management, outlines strategies to address these issues, and developed a management plan for the subbasins. The management plan outlined in the WMP includes

demand management, water supply development, imported water recharge, water quality protection, monitoring and data management, adaptive management, planning integration, and stakeholder involvement.

CVWD, DWA, and MSWD will be able to utilize the data provided in the *Mission Creek-Garnet Hill WMP* in development of their future UWMPs and other planning documents and will participate in programs that implement the elements of the WMP. The General Managers of MSWD, CVWD, and DWA met quarterly to discuss development of this WMP, and continue to meet to discuss plan implementation and other water management issues associated with the Mission Creek and Garnet Hill Subbasins. CVWD also coordinated its planning efforts to ensure consistency between the *Mission Creek-Garnet Hill WMP* and the *2010 Coachella Valley WMP*.

Engineer's Reports on Water Supply and Replenishment Assessment

Since 1973, CVWD and DWA have used imported water from their SWP Allotments (refer to *Chapter 2 Region Description* for more information) to replenish groundwater in the West Whitewater River Subbasin Area of Benefit. In 2002, they began a similar replenishment program in the Mission Creek Subbasin. In 2004, CVWD began a replenishment program in the East Whitewater River Subbasin Area of Benefit using Colorado River water delivered via the Coachella branch of the All American Canal (Coachella Canal). Each year, both CVWD and DWA produce an Engineer's Report that summarize their replenishment activities in each of these subbasins. The reports provide total estimated groundwater pumping and recharge water deliveries for the year, and provide a summary of each agency's total estimated costs to manage the replenishment programs. The reports also provide a calculation of the replenishment assessment rate per AF for the upcoming fiscal year for each area of benefit. Each of the CVRWMG partners is a major groundwater pumper and participates in these replenishment assessment programs. Other participants include agricultural pumpers, golf courses, and fish farms that pump more than 25 acre-feet per year (AFY) within CVWD's boundary or more than 10 AFY within DWA's boundary.

UWMPs

Each of the CVRWMG water purveyors have an approved 2015 UWMP. These UWMPs define their current and future water use, water use targets, sources of supply, source reliability, and existing conservation measures. The Water Conservation Act of 2009 set a goal for the State to reduce urban water use by 20% by the year 2020. To help the state achieve this goal, each water purveyor established a water use baseline, an interim 2015 water use target, and a 2020 water use target. The 2020 target is a 20% reduction from the baseline water use. The 2015 target is used to determine whether each agency is on track to meet the established 2020 target. As documented in the 2015 UWMP's, all of the CVRWMG water purveyors greatly exceeded the 2020 water use targets in 2015. The *2010 Coachella Valley WMP* and *Mission Creek and Garnet Hill Subbasins WMP* were used as a reference for development of 2015 UWMP updates within its study area

Population projections used within the UWMPs of the Region's water purveyors are derived from the U.S. Census in conjunction with projections obtained from the CVAG and/or Riverside County. CVAG population projections include numbers from the Regional Housing Needs Assessment (RHNA) for use in housing and land use planning.

Water Supply Assessments

WSAs are evaluated by the water purveyors in the Region to determine if sufficient water supplies exist long-term to sustain proposed development when the proposed development is 500 residential units or more, or a large commercial project as defined in Water Code §10912(a). Generally, before a city or county determines what level of CEQA analysis is required for a proposed project, it requests that a WSA either be prepared by a water purveyor or be prepared by the project proponent and subsequently approved by the water purveyor. The WSA includes a determination by the water service provider whether its total projected supplies will enable it to meet the projected water demands of the proposed project in normal, single-dry and multiple-dry years during a 20-year projection, in addition to all other existing and planned future uses.

Senate Bill (SB) 610 requires groundwater users to include a description of groundwater basins, pumping, and overdraft conditions within WSAs. In addition, the WSA must include information about the public water suppliers' plans to eliminate long-term overdraft.

In this Region, the CVRWMG partners prepare and/or evaluate WSAs for approval within their own service areas based on data presented in their UWMPs. Regional coordination on the current and future water planning effort described in this section will ensure that WSAs are consistent and that long-term water supply programs are carried out to ensure that projected water demands are met.

State Water Project Extension Project Development Plan

CVWD and DWA, along with other partner agencies, have evaluated the feasibility of constructing an aqueduct to connect the Coachella Valley to the SWP. This evaluation involved analysis of a potential direct connection of SWP water to the Coachella Valley, and specifically to the Whitewater and Mission Creek Groundwater Replenishment Facilities located in western Coachella Valley. Preliminary cost estimates for the project indicate that construction costs alone would be between $1.0 and $1.5 billion based on 2011 dollars. There are concerns associated with the costs and limitations of this project as it would substantially increase the cost of providing water to the Region.

Groundwater Sustainability Plans

The 2014 SGMA required the formation of Groundwater Sustainability Agencies (GSAs) by June 30, 2017 in medium- and high-priority basins, as designated by DWR, and to develop Groundwater Sustainability Plans (GSPs). The GSA is responsible for developing and implementing a GSP to meet sustainability goals of the basin to ensure that it is operated within its sustainable yield, without causing undesirable results. SGMA allows a 20-year timeframe for GSAs to implement their GSPs and achieve long-term groundwater sustainability. Due to the stressed conditions of the Coachella Valley Groundwater Basin, water purveyors within the Coachella Valley have been implementing various programs to address and avoid the problem of overdraft and unstable groundwater levels. Prior to 2009, when the Thomas E. Levy Groundwater Replenishment Facility was complete, groundwater replenishment in the East Whitewater River Subbasin Area of Benefit occurred via in-lieu replenishment, where imported surface water was used for irrigation to offset groundwater pumping. CVWD and DWA have been implementing groundwater replenishment in the West Whitewater River Subbasin Area of Benefit since 1973, and in the Mission Creek Subbasin since 2002, through direct replenishment at the Whitewater River Groundwater Replenishment Facility and Mission Creek Groundwater Replenishment Facility, respectively.

CVWD, CWA, DWA, IWA and MSWD submitted application materials to become GSAs for different subbasins of the Coachella Valley Groundwater Basin, as shown in **Figure 10-2.** The Indio and Mission Creek Subbasins are covered by GSAs, while the Desert Hot Springs Subbasin currently has no exclusive GSA associated with it. In December 2016, the SGMA Alternative GSP Bridge Documents were submitted for the Mission Creek and Indo Subbasins, fulfilling the requirement as a "Medium Priority" basin to have a GSP to implement for full long-term compliance by 2042.

Figure 10-2: Groundwater Sustainability Agencies

Stormwater Resource Plan

The Stormwater Management Planning Act requires public agencies to develop a SWRP in order to receive grant funding for stormwater and dry weather runoff capture projects through any bond measure approved after January 2014. Per the *2015 SWRP Guidelines*, the SWRP may be integrated into an existing planning document as a "functionally equivalent" SWRP. The CVRWMG incorporated additional stormwater requirements into this IRWM/SWR Plan. By utilizing the IRWM Plan as a functional equivalent SWRP, the CVRWMG ensured that prior efforts to establish stakeholder groups and identify stormwater-related issues in the Region were incorporated. The Integrated Flood Management Issues Group, one of four issues groups established during the IRWM Planning process, has collaborated to identify common flooding problems and sources, deficiencies in existing stormwater and drainage facilities, and multi-benefit project opportunities during previous updates to the IRWM Plan. Additionally, the Planning Partners for the IRWM Program represent a range of stakeholders with stormwater resource management interests including local government agencies, water districts, Native American Tribes, MS4 Co-permittees, community organizations and others. Through coordination with the Planning Partners, these groups were coordinated with during the SWRP development, which helped ensure the combined IRWM/SWR Plan is consistent with other planning efforts and documents.

Salton Sea Management Program

The non-potable West Salton Sea Groundwater Basin lies in both the Coachella Valley IRWM Region and the Imperial Valley IRWM Region, but as it is not used as a supply source, the regions consider themselves hydrologically distinct. The Salton Sea Authority (SSA) is chartered by the State of California through a Joint Powers Agreement on June 2, 1993 for the specific purpose of ensuring continued beneficial uses of the Salton Sea. The SSA is composed of CVWD, IID, County of Imperial, County of Riverside, and the Torres-Martinez Desert Cahuilla Indians. The SSA was formed to work with State agencies, federal agencies, and the Republic of Mexico to develop programs that would continue beneficial use of the Salton Sea. In June of 2006, after years of in-depth study and analysis, the SSA adopted the Executive Summary of the Salton Sea Authority Conceptual Plan as the superior alternative to provide wildlife habitats, improve water quality, protect air quality, and provide economic and recreational benefits to the region.

Since then, the SSA has also set forth the Salton Sea Management Program (SSMP) in response to the 2014 California Water Action Plan. The SSMP was commenced with the development of the Salton Sea Funding and Feasibility Action Plan, released in May 2016, which provided a blueprint to create a smaller but sustainable sea (SSA 2017). In March 2017, the SSA followed up with the release of Phase I: 10 Year Plan to guide early investments at the Salton Sea and outline the construction of habitat and other planned projects (SSA 2017a).

10.2.2 Non-Potable Water Supplies

Agricultural Water Management

The CVRWMG Management Region has one agricultural Irrigation District known as Improvement District No. 1 (ID1). ID 1 was formed by the USBR for the purpose of funding the contract repayment obligations for the original construction and the operation and maintenance of the Coachella Canal, protective works (flood protection dikes and channels), irrigation distribution system and drainage system. The canal, protective works, and distribution system are owned by the USBR and maintained by CVWD. The drainage system is owned and maintained by CVWD. CVWD delivers an average of approximately

270,000 AFY of canal water for agriculture. In addition, agriculture uses approximately 100,000 AFY of groundwater. Agricultural groundwater pumpers pay a replenishment fee and participate in the East Whitewater River Subbasin Management Area Replenishment Program. In the CVWMP, CVWD has identified source substitution programs to reduce agricultural groundwater use by making canal water more available. In addition, the CVWMP has identified conservation programs that improve irrigation efficiency for agriculture. An Agricultural Water Management Plan has not been adopted.

CVWD conducts monthly Grower's Meetings with agricultural community to encourage dialog between growers and CVWD regarding water issues. Growers also participate in the East Coachella Valley Joint Powers Authority, a group of affected users that meets periodically to discuss the East Whitewater River Subbasin Management Area replenishment assessment program.

Recycled Water and Canal Water

CVWD and DWA have ongoing recycled water programs. Recycled water in the region is used primarily for golf course irrigation. As described within *Chapter 2 Region Description, Section 2.2.4 Non-Potable Water*, DWA collaborates with the City of Palm Springs for collection, treatment, and distribution of recycled water. In addition, IWA and VSD entered into an Memorandum of Understanding (MOU) and have completed a feasibility study for a joint effort to develop a water reclamation facility for recycled water use to include landscape irrigation for several golf courses in their service area. Further, MSWD is working on a recycled water feasibility study and is designing their new West Valley Water Reclamation Facility (WVWRF). The WVWRF will have an initial capacity of 1.5 million gallons per day (MGD) and is expected to be operational in 2019. MSWD anticipates adding recycled water capabilities in a subsequent phase.

In 2009, CVWD completed the Mid-Valley Pipeline, originally proposed in 2004 in the Mid-Valley In-Lieu Program Draft Concept Paper (CVWD 2004) by Bookman-Edmonston, which proposed a delivery system for both recycled water and Colorado River water (The Mid-Valley Pipeline) to serve the areas multitude of golf courses. The Mid-Valley Pipeline currently serves 16.5 golf courses, with another 28.5 receiving water imported from the Coachella Canal. Additional plans are underway for 45 more golf courses to switch to recycled water in the future.

DWA augments its recycled water supply with shallow groundwater wells that are close to its water reclamation plant. This lower quality water (wastewater percolated at a nearby facility) is used for irrigation, which prevents the concentrated body of low quality water from migrating down to the higher quality groundwater basin. This project is maximizing the use of recycled water while reducing groundwater pumping. CVWD also has a Non-Potable Operations Manager who meets regularly with existing and future users to promote dialog and participates in the local golf organizations, like Hi-Lo Desert Golf Course Superintendents' Association.

The City of Coachella Sanitary District does not have recycled water production infrastructure, though will conduct a feasibility study when updated its sewer master plan in the near feature. Pending the result of the feasibility study, tertiary treatment will be added to the city's current secondary treatment plant. Many developments within CWA's service area have been constructed with recycled water pipelines, and only await delivery of recycled water to use these systems.

Other Non-Potable Water

The *2010 Coachella Valley WMP* recommends that a water desalination program be developed, and states that the amount of water recovered through drain water desalination will potentially range from 55,000 to

85,000 AFY. Water would be taken for desalination from the semi-perched brackish groundwater and would be delivered to the Coachella Canal distribution system for non-potable use. The *2010 Coachella Valley WMP* identified brine discharge and management as a primary impediment to desalination efforts in the Region, and recommended a detailed study to evaluate brine disposal options be conducted to select a cost-effective and environmentally feasible alternative. A *Brackish Groundwater Treatment Pilot Study and Feasibility Study* associated with potential groundwater desalination (CVWD 2008) was completed in 2008. The study compared a variety of treatment technologies and assessed a range of treatment capacities. The selected treatment option resulting from the study was reverse osmosis (RO) with dew evaporation. Based on non-potable demand projections as presented in CVWD's 2015 UWMP, the initial phase of this program will need to be implemented by 2025 to supplement Canal water supply. Changes in water demands as a result of on-going water conservation efforts and availability of other supplies could impact timing of implementation.

10.2.3 Planning Efforts to Offset Climate Change Impacts to Water Supply

The following planning efforts have been produced by entities in the Region to mitigate and adapt to climate change impacts in the water sector:

County of Riverside *Climate Action Plan* (2015)

The County's *Climate Action Plan* contains a greenhouse gas (GHG) emissions inventory that includes emissions from water and wastewater sectors. The Plan also includes measures aimed at reducing GHG emissions, two of which relate to the water sector. One measure requires an increase in energy from renewable power sources and the other encourages increased water conservation, which would reduce energy use through reducing water use.

City of Coachella *General Plan* (2015) and *Climate Action Plan* (2014)

The City of Coachella's *Climate Action Plan* focuses on how policies adopted in the City's *General Plan* will impact GHG emissions. Increased conservation performance targets for new construction, increased greywater use, increased recycled water, landscape design policies that emphasize water use efficiency, and increased public education are all policies that are expected to decrease GHG emissions over the next 20 years.

Cathedral City *Climate Action Plan* (2013) and Rancho Mirage *Sustainability Plan* (2013)

These Plans propose measures that the Cities could take to reduce GHG emissions from the residential, business, building, transportation, municipal, hospitality/recreation and education spheres of life. Water and wastewater is identified as one of the "focus areas" that are included in the greenhouse gas inventory and GHG savings measures framework. Measures in the water and wastewater focus area include:

- Require all licensed landscapers to be certified by the Coachella Valley Association of Governments.
- Build on and exceed current CVWD water conservation ordinance by 15% community-wide by 2020.
- Require all new residential development to constructed for easy implementation of gray water systems that redirect water from wash basins, showers, and tubs.

- Promote and augment City, DWA, and CVWD rebates for drought tolerant planting, turf replacement, and buy-back.
- Build on water conservation ordinance with goal to exceed current commercial-sector water conservation ordinance by 20% community-wide by 2020.
- Promote the installation of irrigation control sensors at parks and golf courses.
- Promote reduced need for golf course irrigation through design and use of drought-tolerant plants.
- Promote highly efficient irrigation sensors, water pumping and delivery for golf courses with Council recognition.

City of Palm Springs *Sustainability Plan* (2016)

The City of Palm Spring's Sustainability Plan serves as a roadmap to address challenges posed by climate change as well as other resource-straining changes such as population growth. The Plan includes numeric objectives, near-term actions, and key performance measures to help the City achieve its goal of sustainable growth. The Plan's vision for water efficiency and reuse in the City includes:

- Reduce potable water use in the City facilities by 50% by 2020.
- Reduce potable water usage per capita in Palm Springs by 30% by 2020.
- Increase recycled and gray water usage in Palm Springs by 10% by 2020.

Local Plan Integration with Coachella Valley IRWM/SWM Plan

The water sector measures included in the plans described in this section all include similar themes of increasing water conservation, increasing water recycling, and increasing renewable energy use in water sector. These local planning efforts to reduce GHG emissions in the water sector are reflected in the IRWM/SWR Plan objective of maximizing local supply opportunities, including water conservation, water recycling and source substitution, and capture and infiltration of runoff (Objective D).

10.2.4 Additional Water Planning Efforts

Regional Flood Control

Regional flood control is handled by two agencies in the Coachella Valley: RCFCWCD and CVWD. RCFCWCD is responsible for western Coachella Valley, including the Palm Springs area west of the Whitewater River and the Desert Hot Springs Area north of the Whitewater River (refer to **Figure 2-5** in *Chapter 2 Region Description*). CVWD is the flood control agency for the cities east of Palm Springs and extending as far south as the Salton Sea.

Each district is responsible for identifying flood hazards, flood warning and early detection, regulating drainage and development in floodplains, regional flood control facility planning and development, and operation and maintenance of completed regional flood control facilities. The agencies work cooperatively to ensure consistent application of flood control and floodplain standards Region-wide.

Emergency Response Planning

Each of the CVRWMG partners is a member of the Riverside County Operational Area (RCOA), an intermediate level of the State emergency services organization, consisting of Riverside County and all political subdivisions within the county area. The Coachella Valley is designated as an operational area for

the coordination of emergency activities and to serve as a communications link in the system of communications between the State's emergency operation centers and operational areas. The RCOA has an Emergency Operations Plan (EOP) that addresses the planned response to extraordinary emergency situations. The EOP establishes a framework for implementation of the California Standardized Emergency Management System (SEMS) and the National Incident Management System (NIMS) for Riverside County. The EOP facilitates multi-agency multi-jurisdictional coordination, particularly between Riverside County and local governments including water purveyors.

All the partners in the CVRWMG have done extensive emergency response planning; however, for security purposes, those documents are confidential. The CVRWMG partners have collaborated to improve water system reliability in extraordinary emergency situations by constructing distribution system connections. These connections may be opened in instances where an agencies water supply has been compromised by a natural disaster. Connections exist between CVWD's and MSWD's water distribution systems, CVWD's and IWA's water distribution systems, CWA's and IWA's water distribution systems, and CVWD's and DWA's water distribution systems. CVWD and DWA are also planning an additional connection in the future. The CVRWMG partners have been engaged in discussion of mutual aid and emergency communications.

Ongoing efforts are underway by the Office of Emergency Services (OES) to have every water purveyor join the California Water and Wastewater Agency Response Network (CalWARN). CVWD and IWA are both members of CalWARN.

National Pollutant Discharge Elimination System Permitting

The RWQCB administers the National Pollutant Discharge Elimination System (NPDES) program for the Coachella Valley Region. The NPDES program regulates point source discharge of wastewater to surface waters of the Region so that the highest quality and beneficial uses of these waters are protected and enhanced. Regulation is by issuance of a regional NPDES MS4 permit, which is updated every five years, most recently in 2013. The permits contain effluent limitations which ensure the protection of the quality of the receiving waters.

Since the early 1990's, NPDES MS4 permitting for the Region has been pursued and maintained collaboratively by the County of Riverside, RCFCWCD, CVWD, and ten incorporated cities: Banning, Cathedral City, Coachella, Desert Hot Springs, Indian Wells, Indio, La Quinta, Palm Desert, Palm Springs and Rancho Mirage (the Permittees). The Permittees jointly submitted the first application for an NPDES MS4 permit on June 11, 1992 to the RWQCB, and the RWQCB adopted the initial permit for the Whitewater River Watershed on May 22, 1996. Following submittal of a Report of Waste Discharge to the RWQCB, a second permit (No. 01-077) was subsequently adopted on September 5, 2001. Permit No. 01-077 incorporates the Permittees proposed Stormwater Management Plan (SWMP) which was developed during the initial Permit term, along with additional management programs that were subsequently developed. On May 21, 2008, the RWQCB adopted the Region's third term permit (Order Number R7-2008-0001). The 2008 permit sought to improve programs established in the previous term. On June 20, 2013, the RWQCB adopted the Permittees' most recent permit (Order No. R7-2013-0011). The June 2013 permit required an update to the Whitewater River Region Stormwater Management Plan (SWMP) and continues to require the Permittees to strive to attain water quality objectives. It also requires implementation of preventative measures to protect existing water quality. The SWMP was completed in June 2014 and revised again in January 2015. The SWMP describes the activities and programs implemented by the Permittees to manage urban runoff in compliance with the NPDES MS4 permit. These

activities and programs include detection and elimination of illicit connections and illegal discharges, commercial/industrial facilities program, new development/redevelopment program, private construction activities, Permittee facilities and activities, public education and outreach program, monitoring program, and Total Maximum Daily Load (TMDL) implementation plan.

As a Principal Permittee, RCFCWCD regularly conducts activities to coordinate the efforts of the other Permittees and facilitate compliance with the NPDES MS4 permit. These activities include chairing monthly meetings of the Permittees NPDES advisory committee (Desert Task Force); administration of area-wide programs such as public education, household hazardous waste collection, hazardous material spill response, stormwater sample collection and analysis; and on-going program development and preparation of the Annual Report to the RWQCB.

California Statewide Groundwater Elevation Monitoring

In November 2009, the State legislature amended the Water Code with Senate Bill X7-6 (SBX7-6), which mandates a statewide, locally-managed groundwater elevation monitoring program to track seasonal and long-term trends in groundwater elevations in California's groundwater basins (as identified in DWR Bulletin 118). To achieve that goal, DWR developed the California Statewide Groundwater Elevation Monitoring (CASGEM) program. DWR will administer the CASGEM program by providing public outreach, creating and maintaining the CASGEM website and online data submittal system, and supporting local entities through the process of becoming a CASGEM Monitoring Entity and preparing CASGEM Monitoring Plans.

In December 2010, DWR released the final CASGEM Groundwater Elevation Monitoring Guidelines and final CASGEM Procedures for Monitoring Entity Reporting. CWC§ 10927 defines the types of entities that may assume responsibility for monitoring and reporting groundwater elevations as part of the CASGEM program. The CVRWMG has determined that each water purveyor will serve as the CASGEM Monitoring Entity within its service area in the Coachella Valley. The Region is currently in compliance with CASGEM, and CASGEM efforts were coordinated through the CVRWMG and are discussed below in *Section 10.2.4 Additional Water Planning Efforts*.

Parks and Recreation

Much work has been done in the hills and mountains surrounding the Coachella Valley to develop hiking and riding trails. Policies for the management of these trails were recently developed as part of the preparation of the Coachella Valley Multiple Species Habitat Conservation Plan (CVMSHCP). In 2001, in response to a need for trails on the Coachella Valley floor, CVAG oversaw the preparation of a Non-Motorized Transportation Plan which proposed a grid of bike trails and sidewalk trails that utilized the rights-of-way of the Whitewater River and Coachella Canal. In the CVAG Plan, the Whitewater River Trail served as the spine of the bikeway system, as well as providing a recreational trail for walkers and, potentially, equestrians.

The County of Riverside Department of Public Health, in collaboration with several trails and bicycle groups, identified and developed the Coachella Valley Urban Trails and Bikeways Map of safe routes for riders and hikers in the Coachella Valley. These trails and bikeways maps are included in General Plans for all local jurisdictions and trail maps have been prepared for inclusion in the Riverside County General Plan

Update. A key element of these plans was the identification of potential trails along the Whitewater River and the Coachella Canal.

In 2007, as a next step in planning the trail system in the Coachella Valley, the Desert Recreation District and the Riverside County Regional Parks and Open Space District commissioned studies related to identification of trail alignments along, and trail connections to, the Whitewater River, Coachella Canal, and the Dillon Road corridors. The 2009 Whitewater Trails Feasibility Study summarized these alignment studies, provided an implementation plan, determined projected costs, and identified potential challenges to implementation.

The Coachella Valley Community Trails Alliance (CVCTA), a nonprofit organization, was formed in 2006 to plan and advocate for a regional trail system in the Coachella Valley. The CVCTA envisions a regional trail system that will connect the entire Coachella Valley through a broad-based alliance of formal and working partners. Formal partners who have submitted written statements of support are CVWD and CWA. Working partners – who have partnered with the CVCTA on trails advocacy and development – include Riverside County Parks and Open Space District, CVAG, Desert Alliance for Community Empowerment, College of the Desert, and the Cities of Cathedral City, Coachella, Desert Hot Springs, Indio, La Quinta, Palm Desert, Palm Springs, and Rancho Mirage.

10.2.5 Technical Evaluations for the IRWM/SWR Plan

In 2014, the CVRWMG conducted four water technical evaluations essential for water resources management within the Coachella Valley. These evaluations, described below, are included in this IRWM/SWR Plan as appendices (**Appendix VI-G, VI-I**, **VI-J**, and **VII-C**) and were developed with input from the Planning Partners and stakeholders.

Disadvantaged Communities Water Quality Evaluation

The purpose of this evaluation was to identify constituents with concentrations that are near or exceed drinking water standards within disadvantaged communities (DACs) in the Coachella Valley. This evaluation is an essential component of the IRWM/SWR Plan, because it addresses one of the most critical issues identified by the CVRWMG and Planning Partners (groundwater quality in DACs). The evaluation in its entirety is included as **Appendix VII-C** to this IRWM/SWR Plan. Please note that because this evaluation has a direct nexus to the work completed for the DAC Outreach Program (refer to *Chapter 4 Disadvantaged Communities* for more information), it is included in **Volume II** of this IRWM/SWR Plan.

Process

The DAC Water Quality Evaluation was completed in tandem with the DAC Outreach Program (refer to *Chapter 4 Disadvantaged Communities*) and utilized the DAC workshops that were held for the DAC Outreach Program as a forum to vet the groundwater quality evaluation with the DAC stakeholders (the DAC Issues Group). In total, the DAC Water Quality Evaluation conducted three co-hosted meetings with the DAC workshops. During these meetings, the technical team provided information to the DAC Issues Group about the purpose of the evaluation and the proposed method of collecting and analyzing data, presented preliminary findings and information, and presented final findings and the final report with edits incorporated from the previous meetings. The technical team also coordinated with the Riverside Department of Environmental Health and the RWQCB to ensure that permitting and other components of the project were consistent with applicable regulatory requirements.

The DAC Water Quality Evaluation included a total of seven steps, which are briefly summarized below:

1. Collect and Evaluate Data: This step involved collecting all publicly-available groundwater quality data, a map of the Region's groundwater basins, potable water service areas from the CVRWMG agencies, and a map of the Region's DACs.
2. Identify Areas of Concern: In this step, the data that was collected under Step 1 was input into a mapping system and combined to identify "Areas of Concern". Areas of Concern were defined as DACs that overlay the groundwater basin and are not located within a potable water service area (i.e. DACs that likely rely on private drinking water wells) and are also within proximity to drinking water wells that have been identified as exceeding at least one water quality maximum contaminant level (MCL).
3. Identify Groundwater Quality and Constituents of Concern in Areas of Concern: In this step, the water quality constituents of concern found in the Areas of Concern (from Step 2) were analyzed to determine the average concentration and number of sampling points.
4. Collect Existing Monitoring Plans: In this step, existing monitoring programs were collected to determine the monitoring programs that are currently in-place.
5. Identify and Prioritize Data Gaps: In this step, the monitoring programs that were collected in Step 4 were analyzed to identify potential monitoring gaps that may impact knowledge regarding DAC groundwater quality.
6. Recommend Specific Studies to Address Data Gaps: In this step, recommendations were developed to address monitoring gaps identified in Step 5.
7. Identify and Evaluate Projects to Restore Drinking Water Quality: In this step, potential projects were identified that could be implemented to address DAC groundwater quality concerns.

Outcomes

The first major outcome of this project was the identification of Areas of Concern (refer to **Figure 4-16** in *Chapter 4 Disadvantaged Communities*), and the second major outcome was the identified constituents of concern within the Areas of Concern (see **Table 10-2**). The second major outcome was that both ion exchange and membrane separation (reverse osmosis) were both identified as Best Available Technology (a USEPA definition of best available economically achievable performance) options for treating the identified constituents of concern.

In total, the major outcome is that because many DACs are in rural or outlying areas, onsite treatment methods already implemented by non-governmental organizations in eastern Coachella Valley (refer to *Chapter 4 Disadvantaged Communities*) were found to be both technologically and economically effective in addressing DAC water quality concerns.

Table 10-2: Identified Constituents of Concern within Areas of Concern

Constituent of Concern	Primary MCL	Average Concentration	Number of Sampling Points
Arsenic	10 µg/L	237 µg/L	8
Fluoride	2 mg/L	6.6 mg/L	200
Nitrate (as N)	10 mg/L	30.2 mg/L	302
Uranium	30 mg/L/20 pCi/L	28.6 pCi/L	52
Hexavalent Chromium (Chromium-6)	50 µg/L[1]	9.1 µg/L	392

1. A MCL for Chromium-6 of 10 µg/L, as proposed by the California Department of Public Health, went into effect on April 15, 2015. This MCL was invalidated by the Superior Court of Sacramento County on May 31, 2017 and is no longer in effect as of September 11, 2017. The SWRCB is in the process of developing a new MCL for Chromium-6. As of the publication of this document, the 50 µg/L MCL for total chromium previously established by the California Department of Public Health is currently in effect.

Salt and Nutrient Management Planning Strategy

The purpose of this evaluation was to develop a Salt and Nutrient Management Planning Issues Group that would develop recommendations for how the Coachella Valley stakeholders can meet requirements of the Recycled Water Policy pertaining to SNMPs. This evaluation was Phase I in the overall effort to develop a SNMP for the Coachella Valley, and culminated in development of a work plan that outlined how a SNMP would be developed for the Coachella Valley and its potential contents. The SNMP Planning Strategy was used to inform the development of the Coachella Valley Groundwater Basin SNMP, which was completed in June 2015. When approved, the SNMP actions and efforts will supplement the Alternative GSPs as part of the SGMA context and compliance.

Process

The Salt and Nutrient Management Planning Strategy convened an Issues Group in 2012 that was comprised of stakeholders with a vested interest in groundwater and recycled water management, including: agricultural interests, private well owners, environmental groups, and RWQCB staff (refer to *Chapter 7 Stakeholder Involvement* for details on the Issues Group attendance and meeting schedule). The Issues Group met three times in 2012 and discussed an overview of the Recycled Water Policy and relevant drivers, the process for SNMP development and SNMP elements, constituents that may be assessed during the SNMP process, and an overview of current understanding regarding salt and nutrient sources in the Coachella Valley Groundwater Basin.

The meetings were facilitated by a technical team to gather stakeholder input on key components of the SNMP such as how source identification, salt loading, groundwater data collection, anti-degradation analysis, development of Best Management Practices (BMP), and monitoring should occur.

Outcomes

The input gathered from the Issues Group was compiled into a final work plan that outlined how a SNMP would be developed in the Coachella Valley. The work plan is considered Phase I of the process, and was completed in early 2013. In 2013, agencies began the next steps towards Phase II of the process, which involved developing a SNMP for the Coachella Valley. The final Coachella Valley Groundwater Basin

SNMP was completed in June 2015. The original intent was to incorporate the SNMP as an amendment to the Basin Plan. This, however, did not occur and the SNMP is a stand-alone document.

Integrated Flood Management Plan

The purpose of this evaluation was to establish an Integrated Flood Management Issues Group that would develop recommendations for how Coachella Valley stakeholders can implement integrated flood management practices. The final product from this evaluation included maps of high value/priority areas of flooding based on mapped flood hazards, land use values and disadvantaged communities. The maps were then evaluated to determine potential integrated flood management opportunities that could be implemented to reduce flood hazards in the high value/priority areas in the Coachella Valley. The final results of this study are recommendations for potential integrated flood management opportunities that could potentially be implemented as future projects through the IRWM/SWR Plan. The Integrated Flood Management Technical Evaluation is included as **Appendix VI-I** to this IRWM/SWR Plan.

Process

Stakeholder outreach was performed as part of the study process in order to involve different agencies, community groups, and other watershed stakeholders (the Integrated Flood Management Issues Group) in the development of the Integrated Flood Management Technical Evaluation. This included the development of the initial feedback on the information database and providing an opportunity to understand the current issues with existing flood hazards, as well as implementation of floodplain management projects. Stakeholder participation was provided during study and plan formulation process at general forum watershed workgroup meetings with interested stakeholders that provided local input, project background, guidance, and specialized technical information. The effort was aimed at understanding watershed guidance needs and flood protection measures that are compatible with both the physical, political, environmental, and regulatory constraints.

Developing solutions for effectively managing flood risks requires a "watershed approach" that allows holistic strategies that can also address "beneficial uses" and watershed functions. The goal is to provide the forum and guidelines to allow for improved regional flood management planning on a watershed basis, as well as defining the global strategies that can be used by all the watershed stakeholders to form the foundation in developing prospective projects for funding.

Outcomes

The strategy for implementing the integrated flood management watershed approach involved extensive mapping through a Geographical Information Systems (GIS) database. First, a map was produced of regional flood hazards based on the existing and potential future flood risk, different levels of flood risks, sources of flooding, and priorities (i.e., various land uses). After the flood hazards map was developed, a variety of other features were mapped to determine where flood hazards coincide with a variety of factors such as groundwater basins, habitats, sensitive species, permeable soils, erosion hazards, debris and settlement production, and impaired water bodies.

All of the aforementioned mapping was considered as "layers of constraints" to develop a multi-benefit opportunities assessment. The purpose of the opportunities assessment was to determine areas where integrated flood management techniques could be potentially implemented. For example, the opportunities assessment would determine where multi-benefit flood projects such as those that also benefit habitat and capture flows for infiltration could be implemented. The more potential opportunities identified at a

location, then the greater possibility of achieving multiple flood management and water resources benefits. For example, in-stream groundwater recharge locations would be possible at a location where there is (1) wide floodplain area, (2) permeable soil, and (3) a groundwater basin to maximize infiltration benefits to the aquifer.

Based on the findings from the Integrated Flood Management Technical Evaluation, the following actions are recommended to advance the use of integrated flood management on a regional basis within the Coachella Valley or in the development of flood management solutions:

1. Increase collaboration/communication of agencies responsible for municipal and regional floodplain management to increase effectiveness of flood management
    a. Develop framework and process for a different level of communication for floodplain managers
    b. Provide a basis for a regional workgroup forum of floodplain managers and watershed stakeholders that allows increased collaboration and future regular meetings. Utilize existing industry forums or regional planning agencies such as CVAG to establish these initial working groups.

    Result: The NPDES Desert Task Force Advisory Committee was established to increase collaboration and communication among regional floodplain managers.
2. Improve understanding and accuracy of regional and local flood risks on a watershed basis
    a. Develop understanding of the different types of flooding from both regional level and local level, and include specific flood problems for the different areas as well inventory of common "hot spots" of chronic problems
    b. Provide methodology to define the magnitude of flood risks to better prioritize the level of flood risk which integrates potential flood damage
    c. Review common recurring flood damage losses and evaluate the sources of these flood problems.
    d. Improve the accuracy of the existing flood hazard mapping and extend mapping of these hazards to areas which are currently not mapped

    Result: Development of the Whitewater River Region SWMP improved understanding and accuracy of regional and local flood risks. Analysis that has occurred to develop this IRWM/SWR Plan has further increased understanding of flood risks.
3. Develop regional watershed database to assist in flood management planning that will provide an exchange of data and information for all watershed stakeholders as well as enable sharing of information between public agencies to foster collaboration
    a. Ensure that different watershed stakeholders have access to the different available information and studies being performed
    b. Develop community based watershed groups to provide monitoring of floodplains and reduce costs of performing these services while increasing the active field database
    c. Collect and compile watershed mapping information related to flood hazards and watershed information in a GIS format and develop a schematic for managing the data to benefit future watershed planning

    Result: Develop an updated GIS database of the different flood control and flood management infrastructure

4. Develop watershed-based planning, which includes collaboration with all the different stakeholder groups to minimize conflicts and define specific watershed goals
    a. Develop an understanding of the different priority goals of the watershed stakeholders based on the common recurring flooding issues/problems/hazards
    b. Involve environmental groups and agencies in the planning process as well as develop an understanding of additional environmental resources

    Result: The IRWM/SWR Plan includes watershed-based planning that was developed with input from stakeholder groups to define watershed goals. The IRWM/SWR Plan Update has incorporated additional stakeholder input to define goals specific to stormwater management.
5. Initiate understanding and awareness of integrated flood management for agencies and the community
    a. Prepare educational materials and information on the background of integrated flood management to encourage better understanding of the required thought process
    b. Provide examples of integrated flood management projects to assist in understanding the basis of the key planning principles, which are different from conventional watershed planning, and how to apply them
6. Identify applicable integrated flood management strategies on a watershed basis that can be utilized within the Coachella Valley to assist agency's understanding on how integrated flood management can be implemented, given the nature of the types of flood hazards within the Coachella Valley
    a. Define common types of integrated flood management strategies which integrate different planning principles through different scales (1) watershed level, (2) city level, and (3) neighborhood/local level for the arid climate
    b. Develop regional mapping of both opportunities and constraints related to integrated flood management
    c. Develop a specialized GIS-based tool which assists in defining locations of integrated flood management projects at a regional scale, provides maximum multiple benefits, and provides a method for prioritizing flood management projects
7. Develop a watershed planning guidance program that implements integrated flood management through different land planning regulations and collaboration with agencies during the development planning process
    a. Develop a watershed planning process framework with key planning principles for implementing integrated flood management that focuses on linking sustainability, water resource management, and land use planning to flood management and the entire hydrologic cycle
    b. Prepare guidance on integrating land use planning as a central element of integrated flood management and define how it can be utilized for different type of floodplain hazards issues
    c. Develop an overall guidance document that provides stakeholders with the basis for watershed planning with integrated flood management

Groundwater Monitoring Strategy

The purpose of this evaluation was to develop and implement monitoring programs consistent with SBX7-6 that requires CASGEM. The CVRWMG has determined that each water purveyor will serve as the CASGEM Monitoring Entity within their respective service areas. As such, each water purveyor collects and transmits groundwater elevation monitoring data to DWR in accordance with SBX7-6.

Given that the Coachella Valley is in compliance with SBX7-6, the CVRWMG decided to complete additional monitoring work to provide added value to the IRWM/SWR Plan and address key regional monitoring needs. This monitoring work was further expanded to include actions and strategies consistent with existing planning documents that would protect groundwater levels and quality. The complete report, which is titled "Evaluation of Valley-Wide Groundwater Monitoring Programs" to reflect the fact that this report includes more than an evaluation of groundwater elevation monitoring, is included as **Appendix VI-J**. In addition, monitoring plans and actions are included in the Alternative GSPs as part of the SGMA context and compliance.

Process

The Evaluation of Coachella Valley-Wide Groundwater Monitoring Programs conducted a thorough review of the two groundwater management plans in the Region and the RWQCB's Basin Plan (RWQCB 2017). The two groundwater management plans considered were the Coachella Valley WMP (CVWD 2012) and the Mission Creek-Garnet Hill WMP (CVWD et al. 2013). This review focused on the status of the groundwater basins (groundwater levels and quality), and what actions are currently in place to manage maintenance of the groundwater levels and quality in the Region. Evaluation of plan recommendations was used to develop a list of strategies that could be implemented to provide groundwater benefits to the Region. These strategies will help identify projects and inform the development of additional projects that could be implemented to help the Region achieve the groundwater basin goals established in this IRWM/SWR Plan and other relevant planning documents.

Outcomes

Findings from the Evaluation of Valley-Wide Groundwater Monitoring Programs include two sets of recommendations: those expressed in the Coachella Valley or Mission Creek-Garnet Hill WMPs and additional recommendations for data and monitoring program modifications. Those findings are summarized below, along with supplemental recommendations only included in the WMPs.

Recommended Modifications to Existing Monitoring Programs per Coachella Valley and Mission Creek and Garnet Hill Subbasins Water Management Plans

The 2012 Coachella Valley WMP and 2013 Mission Creek and Garnet Hills Subbasins WMP include recommended modifications to existing monitoring programs to address identified data gaps pertaining to monitoring for groundwater levels, groundwater quality, and groundwater use.

For monitoring of groundwater elevations, five monitoring modifications/projects were recommended in the WMPs:

1. Report pertinent groundwater level data to the State's CASGEM program and in the Engineer's Reports prepared by the CVWD and DWA. Compare data collected during CASGEM-related monitoring with modeled groundwater levels to ensure that the Region's numerical model is accurately simulating basin conditions. It is recommended that this be achieved through an annual

assessment of data, which compares measured water levels with modeled levels to document progress toward meeting the WMP and CASGEM objectives. If the annual assessment finds such a need, the numerical model should be updated and re-calibrated to accurately reflect new information.

2. Additional groundwater level hydrographs should be prepared for groundwater wells in each of the Region's subbasins and an annual accounting of the amount of water stored in each subbasin should be prepared to better indicate changes in groundwater levels.
3. Areas with identified spatial data gaps for existing wells should be surveyed to identify existing wells that could potentially be added to the existing monitoring network for groundwater levels (i.e. institute groundwater level monitoring on existing wells that do not currently monitor groundwater levels). For example, the Mission Creek-Garnet Hills WMP suggests identifying additional existing private wells that could be monitored routinely or making arrangements to install meters on unmetered production wells to provide accurate production records for replenishment assessments and basin management.
4. Evaluate potential locations to construct monitoring wells near the basin boundaries to document natural inflow to and outflow from the basins and near the recharge basin to better track recharge effects. (This recommendation was unique to the Mission Creek-Garnet Hill WMP.)
5. Data loggers could be installed on selected, dedicated monitoring wells to provide more continuous groundwater level data that allows for a real-time evaluation of groundwater elevation data in cases where timely decision-making is necessary.
6. A water resource database could be developed for the Coachella Valley, which will be used as a mechanism for data sharing among the participating water agencies, Tribal Nations, and other interested parties.
7. Assess the need for periodic ground elevation surveys to determine whether land subsidence is occurring. (This recommendation was unique to the Mission Creek-Garnet Hill WMP.)

For monitoring of groundwater quality, three monitoring modifications/projects were recommended in the WMPs:

1. Maintain existing groundwater reports (Consumer Confidence Reports) to include new monitoring programs or requirements as necessary and to assess groundwater quality on a regional level. The Coachella Valley WMP also suggests that this water quality data be brought into the water resource database regarding groundwater elevation monitoring, as noted in point 6 above.
2. Working jointly (CVWD, other water agencies, and Tribal Nations) to investigate if perchlorate exists in water supply wells due to a lack of data for private and tribal wells.
3. Development and calibration of a water quality model capable of simulating the changes in salinity and possibly other conservative water quality parameters in conjunction with the salt and nutrient management plan.

For monitoring of groundwater use, two monitoring modifications/projects were recommended in the 2010 Coachella Valley WMP to address instances where groundwater wells in the Coachella Valley are not metered:

1. Maintain up-to-date groundwater production records in the Region to properly manage groundwater basins and fairly allocate basin management costs. This recommendation includes a

need for an updated survey of production wells using power records and pump tests to develop more accurate estimates of pumping by unmetered wells.

2. Compile and document the amount of in-lieu groundwater recharge that takes place through delivery of recycled or imported water to reduce groundwater production on an annual basis.

Additional Recommendations for Data and Monitoring Program Modifications

The Evaluation of Valley-Wide Groundwater Monitoring Programs includes additional recommendations for activities or projects beyond those recommended in the WMPs to address data gaps in the existing monitoring programs. Those recommendations are summarized below.

1. Spatial Monitoring Well Distribution: In areas that have noted spatial gaps (i.e. where monitoring data may not be available) it would be beneficial to either re-purpose existing wells to expand their data collection ability or add additional monitoring wells to minimize gaps in data from a spatial point of view.
2. Vertical Monitoring Well Distribution: To address apparent vertical distribution data gaps it was recommended that well completion information be obtained where possible or that all wells be analyzed to identify any data gaps in terms of the vertical distribution of data collected. However, because well construction data including well completion information is not public information, this data may not be accessible by the CVRWMG and other agencies in some cases.
3. Monitoring Program Documentation and Update: It was recommended that formal documentation of on-going monitoring activities continue throughout the Region to ensure consistency in monitoring implementation and data analysis and reporting.

10.2.6 Individual Planning Efforts by Agency

*This section complies with the **Organization, Coordination, Collaboration** requirements for the SWRP by explaining why individual agency participation in various isolated efforts is appropriate.*

Each of the CVRWMG members conducts ongoing planning efforts that are specific to its service area such as distribution system master planning and project specific feasibility and environmental impact studies. Public review and comment is solicited when appropriate. A list of current studies is shown in **Table 10-3**.

Coachella Valley Water District

The primary goal of CVWD's *2010 Coachella Valley WMP* is to eliminate overdraft and is associated adverse impacts. Because of CVWD's commitment to that plan, CVWD has completed several pilot programs and studies which support the implementation of source substitution programs proposed in the Coachella Valley WMP to maximize the Coachella Valley Region's water supplies. These studies, which include the Mid-Valley In-Lieu Program Concept Paper, the Brackish Groundwater Treatment Pilot Study, the Surface Water Treatment Study, and the non-potable water master plan, are described further below.

The Mid-Valley In-Lieu Program Concept Paper (CVWD 2004), prepared by Bookman-Edmonston, proposed integrating the use of Colorado River water from the Coachella Canal with CVWD's recycled water program via the Mid-Valley Pipeline. The Mid-Valley Pipeline is a distribution system to deliver Colorado River water to the mid-Coachella Valley area for use with CVWD's recycled water for golf courses and open space irrigation. This source substitution project will reduce groundwater pumping for these uses. Construction of the first phase of the Mid-Valley Pipeline from the Coachella Canal in Indio to

Water Reclamation Plant No. 10 (WRP-10) (6.6 miles in length) was completed in 2009. Implementation of later phases will expand the Mid-Valley Pipeline to serve approximately 50 golf courses in the Rancho Mirage-Palm Desert-Indian Wells area that currently use groundwater as their primary source of supply with a mixture of Colorado River water and recycled water.

The Brackish Groundwater Treatment Pilot Study (CVWD 2008c), prepared by Malcolm-Pirnie, demonstrated that reverse osmosis technology can effectively be used to treat agricultural drainage water for reuse as non-potable water. It also demonstrated that bank filtration can effectively be used as a pretreatment method.

Based on the results of the Brackish Groundwater Treatment Pilot Study, Malcolm-Pirnie completed a Surface Water Treatment Study for Canal Water in 2008 (CVWD 2008d). This study investigated three alternative treatment approaches for meeting the Surface Water Treatment Rule and reverse osmosis to improve the salinity of Colorado River water delivered for urban use.

To further the use of non-potable water in Eastern Coachella Valley, CVWD has completed planning efforts to identify all golf courses in Eastern Coachella Valley that can utilize non-potable Canal water for irrigation in place of privately-pumped groundwater. CVWD has completed similar planning efforts in Western Coachella Valley to identify golf courses that can feasibly connect to the Mid-Valley Pipeline and therefore use non-potable water for irrigation in place of onsite groundwater pumping. CVWD will continue efforts necessary to connect the identified golf courses to either the Canal water or the Mid-Valley Pipeline non-potable water systems.

Annually, CVWD produces and distributes Water Quality Reports according to State regulations. The reports detail CVWD's water quality monitoring efforts in accordance with EPA standards. The reports are then distributed to CVWD customers. In addition, CVWD has an UWMP that was adopted in 2005, and was updated in 2010 and 2015.

Engineer's Reports for the Mission Creek and Whitewater River Subbasins are also completed annually. The reports describe groundwater in the basins, and specifically define the need for artificial recharge for groundwater replenishment.

Coachella Water Authority

The City of Coachella Sanitary District does not have recycled water production infrastructure, though will conduct a feasibility study when updated its sewer master plan in the near feature. Pending the result of the feasibility study, tertiary treatment will be added to the city's current secondary treatment plant. Many developments within CWA's service area have been constructed with recycled water pipelines, and only await delivery of recycled water to use these systems.

Desert Water Agency

DWA engages in several annual planning efforts, as well as several more specific efforts. Annually, DWA produces and distributes Water Quality Reports according to State regulations. The reports detail DWA's water quality monitoring efforts in accordance with EPA and SWRCB standards. The reports are then distributed to DWA customers. In addition, DWA has an UWMP that was adopted in 2005, and was updated in 2010 and 2015.

Engineer's Reports for the Mission Creek and Whitewater River Subbasins are also completed annually. The reports describe groundwater in the basins, and specifically define the need for artificial recharge for groundwater replenishment.

DWA has been involved in recycled water planning since the 1980s when DWA and the City of Palm Springs first entered into an agreement to treat wastewater.

In 2008, DWA conducted the Desert Water Agency Global Positioning System (GPS) Control Survey April 2008 and Facilities Benchmarks 1962-1994, to study land subsidence. The purpose of this study was to establish a current baseline of horizontal control and vertical control at DWA well sites with existing survey control measurements, and to establish horizontal and vertical control moments at DWA well sites that did not have previous measurements. The study was also used to examine possible ground subsidence within DWA's service area by comparing newly established vertical baseline data with historical data. The study found that no subsidence has occurred.

DWA has also engaged in a variety of security and risk-related assessments; however, those planning efforts are confidential to ensure water system security.

Indio Water Authority

In August 2008, IWA adopted a Water Resources Development Plan that focuses on review of water management alternatives concerning diversification of water resources. This diversification includes recycling "used" resources and conserving available resources. Viable water management alternatives were identified and screened. An integral aspect for many of the water management alternatives involves the development of partnerships and regional cooperation. Water use efficiency strategies and recycled water use is an integral part of the plan. Depending on the timing and quantities of "new" water anticipated from high priority alternatives and the timing of future demands, further studies on the use of treated Canal water will be undertaken.

To implement reuse in its service area, IWA has teamed with VSD to develop a Recycled Water Master Plan. This plan is intended to identify recycled water use opportunities and plan for construction of recycled water infrastructure, which currently is lacking in the IWA service area.

Mission Springs Water District

MSWD is currently in design for the WVWRF, with an initial treatment capacity of 1.5 MGD. While surface spreading of effluent is currently proposed, MSWD anticipated adding tertiary treatment in a subsequent phase. In addition, MSWD is preparing a Recycled Water Feasibility Study to evaluate cost effective recycled water projects to implement. Further, MSWD has developed landscape guidelines to assure growth from both in-fill and specific plans include water–efficient landscaping and irrigation. The guidelines were developed in close consultation with land use agencies and the District provides plan check and inspection services needed to implement guidelines.

MSWD has continued implementation of its Groundwater Quality Protection Program, which aims to protect quality of groundwater by converting customers from individual septic systems to sewer service. As of 2015, 7,800 parcels had converted from septic to sewer, with the remaining 3,200 parcels converted by 2025. Some of these conversions have been funded by the Proposition 84-Round 1 and Round 2 Implementation Grants. In addition, MSWD has received Proposition 1, DAC Involvement funding to complete design for additional areas.

Valley Sanitary District

VSD is exploring the potential of implementing a recycled water project with IWA. The goal of this project is to reuse tertiary treated wastewater from VSD to provide a new water source for recycled water uses such

as irrigation. VSD is working with IWA to complete the final feasibility study, financial planning, and engineering studies, as well as a Recycled Water Master Plan.

VSD completed part one of a two-part treatment plant expansion project. Part one upgraded the treatment plant to increase the treatment capacity to 10 million gallons per day (mgd), and part two will further increase the treatment capacity to 18 mgd.

Table 10-3: Local Water Plans and Studies in Coachella Valley IRWM Region

Plan/Project	Agency	Category
Annual Water Quality Reports	CVWD, CWA, DWA, IWA, MSWD	All
Brackish Groundwater Treatment Pilot Study and Feasibility Study	CVWD	Non-Potable Water
Brackish Groundwater Treatment Pilot Study, 2008	CVWD	Non-Potable
California's Groundwater Bulletin 118: Coachella Valley Groundwater Basin, Indio Subbasin	DWR	Groundwater
City of Coachella 2006 Water Master Plan Update	CWA	Water Resources
Coachella Valley WMP, 2002	CVWD	Water Resources
Coachella Valley WMP Update, 2012	CVWD	Water Resources
Colorado River Basin -- 2005 Watershed Management Initiative	RWQCB	All
Comprehensive Wastewater Facilities Strategic Plan, 2008	MSWD	Wastewater
Comprehensive Water Master Plan, 2007	MSWD	Potable Water
Clean Water Act Section 303(d) List of Water Quality Limited Segments, 2010	RWQCB	All
Desert Hot Springs Water Recycling Appraisal Study, 2004	MSWD	Recycled Water
Desert Water Agency GPS Control Survey April 2008 and Facilities Benchmarks 1962-1994	DWA	Groundwater
Desert Water Agency Site Risk Assessment, 2002	DWA	All
Domestic Water System General Plan, 2008	DWA	Potable Water
Engineer's Report on Water Supply and Replenishment Assessment - East Whitewater River Subbasin Area of Benefit	CVWD	Groundwater
Engineer's Report on Water Supply and Replenishment Assessment - Mission Creek Subbasin Area of Benefit	CVWD	Groundwater
Engineer's Report on Water Supply and Replenishment Assessment - West Whitewater River Subbasin Area of Benefit	CVWD	Groundwater
Engineer's Report on Water Supply and Replenishment Assessment – Mission Creek Subbasin Area of Benefit	DWA	Groundwater
Engineer's Report on Water Supply and Replenishment Assessment—Whitewater Subbasin Area of Benefit	DWA	Groundwater
Engineer's Report for Benefit Assessment - Whitewater Watershed, 2008	RCFCWCD	Flood/Stormwater

Plan/Project	Agency	Category
Final Recirculated Coachella Valley MSHCP, 2007	CVAG	Habitat
Groundwater Flow Model of the Mission Creek Subbasin, Desert Hot Springs, California	MSWD	Groundwater
Groundwater Input to the Alluvium Basin of the Mission Springs Water District	MSWD	Groundwater
Groundwater Quality Data in the Coachella Valley Study Unit (GAMA), 2007	MSWD	Groundwater
Mid-Valley In-Lieu Program Concept Paper, 2004	CVWD	Non-Potable
Mission Creek-Garnet Hill Water Management Plan, 2013	CVWD, DWA, MSWD	Groundwater
Northeast Quadrant Water Master Plan	MSWD	Groundwater
Northwest Quadrant Water Master Plan Update, 2008	MSWD	Potable Water
Preliminary Water Balance for the Mission Creek Groundwater Subbasin	MSWD	Groundwater
Recycled Water Program Development Project Feasibility Study, 2018	CWA, IWA, MSWD, VSD	Wastewater/Recycled
Recycled Water Treatment Facility Conceptual Design, 2010	IWA	Wastewater/Recycled
Salton Community Services District Sewer System Management Plan, 2010	SCSD	Wastewater
Salt and Nutrient Management Plan, 2015	CVWD, DWA, IWA	Groundwater
Sanitary Sewer Management Plan	DWA	Wastewater
Sanitation System Master Plan Final Draft, 2009	CVWD	Wastewater/Recycled
Security Vulnerability Risk Assessment of the Desert Water Agency Using the Vulnerability Self-Assessment Software Tool, 2003	DWA	Potable Water
Sewer System Management Plan, Needs Assessment	CVWD	Wastewater
Surface Water Treatment Study, 2008	CVWD	Potable Water
Surface Water Treatment Facility Conceptual Design, 2010	IWA	Potable Water
Wastewater System Comprehensive Master Plan, 2007	MSWD	Wastewater
Water Quality Control Plan for Colorado River Basin - Region 7, 2017	RWQCB	All
Water Master Plan Update	IWA	All
Water Recycling Feasibility Study, 2007	MSWD	Recycled Water
Water Resources Development Plan, 2008	IWA	Water Resources
Whitewater River Region Stormwater Management Plan	MS4 Permittees	Stormwater
Total Maximum Daily Load and Implementation Plan for Bacterial Indicators, Coachella Valley Stormwater Channel	RWQCB	All
Urban Water Conservation and Efficiency Master Plan, 2010	IWA	Water Resources

Plan/Project	Agency	Category
Urban Water Management Plans, 2015	CVWD, CWA, DWA, IWA, MSWD	Potable Water

10.3 Relation to Local Land Use Planning

IRWM Standards: *This section complies with the* ***Relation to Land Use Planning Standard****, which requires an exchange of knowledge and expertise between land use and water resource managers; examines how RWMGs and land use planning agencies currently communicate; and identifies how to improve planning efforts between the RWMGs and land use planning agencies.*

SWRP Requirements: *This section addresses the* ***Organization, Coordination, and Collaboration requirement*** *to describe the relationship of the SWRP to other existing planning documents, ordinances, and programs established by local agencies.*

The local land use planning agencies in the Coachella Valley Region consist of nine cities and the County of Riverside. These agencies are responsible for managing growth and development in the Coachella Valley to ensure a healthy and sustainable economy long into the future. They make decisions and seek stakeholder input utilizing the land use planning tools discussed in this section. Public involvement in local land use planning helps define the community's vision of future growth and development. Water agency involvement ensures that the water planning goals of the region are supported by local communities and are harmonious with the future growth plans. For example, MSWD's Board of Directors meets periodically in joint session with the City of Desert Hot Springs' City Council to ensure consistency in planning efforts.

10.3.1 Linkages between Water Management and Land Use Planning

The following sections describe how local land use planning decisions relate to water management. As applicable, the CVRWMG will use the shared information and collaborate with regional land use planning agencies to help adapt water management systems to potential climate change impacts.

General Plans

General Plans are prepared by the cities in Coachella Valley and the County, as required by state law. General Plans represent each community's comprehensive and long-term view of its future. General Plans provide a blueprint for growth and development. The General Plans must address the city's physical development, such as general locations, appropriate land use mixtures, timing and extent of land uses, and supporting infrastructure including water, sewer, and stormwater infrastructure.

General Plans are periodically updated and General Plan Advisory Committees are appointed to serve as the primary means of citizen involvement in the formulation of the draft General Plans. General Plan Advisory Committees provide a means for local water planners to have input on General Plan development.

City Councils and Planning Commissions use the goals and policies of General Plans as a basis from which to make land use decisions. General Plans in this Region include goals for water and sewer service such as the following:

- Provision of water, sewer, and utility facilities which safely and adequately meet the needs of the city at build out.
- Conservation of the quality and quantity of the groundwater basin.
- Establishment of a city-wide sewer system.

The six CVRWMG agencies participate in General Plan development to ensure that water management goals are accurately represented, and to ensure that the water-related needs of future development have been considered in the land use planning process. Water-related needs include supporting long-term programs that ensure adequate quantities of safe drinking water and water for outdoor irrigation, making sure that developed areas are safe from flood hazards, and that water, sewer, and flood control infrastructure are incorporated into future development.

Specific Plans

Specific Plans establish a link between General Plan policies and individual development proposals in a defined area. They are important in water planning because they specify allowable land uses, describe existing infrastructure, and identify future infrastructure needs and costs. They can result in policies specific to infrastructure master planning and financing to ensure that facilities are not undersized or otherwise insufficient. The Coachella Valley cities follow specific plan processes that provide opportunities for water agencies, the general public, as well as residents located within planning areas, to assist in the planning of their particular communities. Local water agencies provide input and enforce development policies to ensure that the water-related needs of specific plan areas are addressed. By being included in the Specific Plan review process, water agencies are able to help developers quantify their water infrastructure needs and costs, plan their land uses to address flood hazard mitigation requirements, and provide WSAs.

Multiple Species Habitat Conservation Plan

The purpose of the CVMSHCP is to provide a regional approach to balanced growth that will help conserve the Coachella Valley's natural heritage and allow for economic development by providing comprehensive compliance with federal and state laws to protect endangered species. The CVMSHCP permanently conserves 240,000 acres of open space and 27 threatened plant and animal species across the Coachella Valley. It allows for more timely construction of infrastructure, including water infrastructure, essential to improving the Coachella Valley.

The CVMSHCP was prepared by the CVAG and the Coachella Valley Mountains Conservancy. Current signatories to the CVMSHCP include Riverside County, the Cities of Cathedral City, Coachella, Desert Hot Springs (I-10 annexation area only), Indian Wells, Indio, La Quinta, Palm Desert, Palm Springs, Rancho Mirage, CVWD, Imperial Irrigation District, CVAG, and CalTrans. The Coachella Valley Conservation Commission (CVCC), a joint powers authority of elected representatives from signatory agencies, oversees and manages the CVMSHCP.

The CVMSHCP completed a Major Plan Amendment that brought the entire City of Desert Hot Springs and MSWD into the IRWM/SWR Plan as permittees. The Amendment process included public review, as well as coordination with federal and State wildlife agencies.

Climate Action/Sustainability Plans

Eight cities in the Coachella Valley Region and one county have completed a climate action plan (CAP) or sustainability action plan. These jurisdictions include the City of La Quinta (2012), City of Cathedral City (2013), City of Coachella (2014), City of Palm Springs (2013), City of Rancho Mirage (2013), City of Palm Desert (2010), City of Desert Hot Springs (2013), City of Indian Wells (2013), and the County of Riverside (Riverside County Planning Department 2015). Overall, the primary focus of each plan is to incorporate sustainability features into city planning and reduce GHG emissions within its respective jurisdiction. As the impacts of climate change threaten the natural environment, as well as the health and economic vitality of California communities, cities within the Coachella Valley are now recognizing the key role that local planning efforts will play in the transition to a low-carbon society. Generally, all plans present a framework for the development and implementation of policies that will improve energy and water management, reduce waste and consumption, improve air quality, preserve local landscape and history, and create a green economy. Major emission source spheres that are addressed include residential development, commercial and industrial growth, transportation, municipal governance, hospitality and recreation, and education.

As part of its emissions analysis, each plan generally includes the following components:

- **GHG Inventory:** As the first formal step to pave a path to sustainable management of emissions, a GHG inventory provides a detailed outline of the jurisdiction's carbon footprint and presents emission sources and sectors that demonstrate the greatest opportunity for feasible reduction.
- **GHG Reduction Targets:** At a minimum, jurisdictions aim for targets consistent with California's Global Warming Solutions Act (AB 32), which calls for reducing GHG emissions to 1990 levels by 2020. Some jurisdictions, such as Palm Springs, present more aggressive targets. The City of Palm Springs signed onto the U.S. Conference of Mayors Climate Protection Agreement, which aligns with the Kyoto Protocol in reducing signatory city emissions to 7% below 1990 levels by 2012.
- **Implementation Program:** Following the presentation of various strategies to reduce emissions and encourage sustainable land use, plans also can include a high-level discussion of the timeline, cost, and legislative steps needed for the implementation of these measures. In addition, CAPs will outline a plan for tracking results and measuring progress in reaching its goals.
- **Discussion of General Plan Policies:** Some CAPs are drafted in conjunction with the city's General Plan (Riverside County Planning Department 2015, CWA 2014). As a result, the CAP analyzes relevant policies from the General Plan and how they align with specific emissions goals. In addition, the actions recommended in the CAP establish the foundation of land use planning presented in the General Plan.
- **CEQA Review:** For some jurisdictions, the CAP has a dual use as a document outlining the indirect and cumulative environmental effects associated with the IRWM/SWR Plan (CWA 2014, CDHS 2013). This can be used for a more streamlined CEQA review of proposed projects.

Other Development Approval Processes

Additional land use planning tools such as subdivision maps (dividing land into smaller lots), and Conditional Use Permits, Variances, Building and other Permits for individual development provide water planners with opportunities to work with planning agencies to approve water smart developments. For instance, CVWD participates in Riverside County's monthly Land Development Committee meetings to

share comments on projects with the County and developers. This provides an opportunity for CVWD to identify and address local flood hazards and enforce water demand management measures.

10.3.2 Current Relationships Between Water Managers and Land Use Planners

In the Coachella Valley, two of the five water agencies, CWA and IWA, are a branch of city government and report to city councils. Thus, their domestic water planning activities are an integral part of their respective city's land use planning processes. In addition to its role as domestic water service provider, the City of Coachella is also responsible for wastewater collection and local drainage. Likewise, the City of Indio is responsible for local drainage and works closely with its wastewater provider, VSD.

CVWD, DWA, MSWD, and VSD, while not associated with city government, work closely with the municipalities in their service areas to ensure quality coordination in land use planning. CVWD provides water service, wastewater management, and recycled water service to 1,000 square miles in central Riverside County (refer to **Figure 1-2** in *Chapter 1 Introduction*), including the Cities of Cathedral City, Rancho Mirage, Palm Desert, and La Quinta. DWA provides water service, groundwater management, sewer conveyance, and/or recycled water in Palm Springs, portions of Cathedral City, Desert Hot Springs, and unincorporated areas. MSWD provides water and wastewater service to the City of Desert Hot Springs and nearby unincorporated areas. VSD provides wastewater collection and management services to customers primarily within the City of Indio.

Each water agency is responsible for approval of WSAs and Water Supply Verifications (WSVs) for cities within their boundaries that are 1) proposing new developments requiring environmental review (CEQA), 2) having more than 500 residences, or 3) using the water supply of a 500- unit development. Requirements for the preparation of a WSA are set forth in Section 10910 of the California Water Code in accordance with Senate Bill 610, which was enacted in 2001 and became effective January 1, 2002.

Planning Partners

The IRWM/SWR planning process – particularly through the Planning Partners meetings – provides a forum for the six CVRWMG member agencies to engage the land use planning agencies in water and stormwater planning, to hear their water-related needs and perspectives, and to integrate them into a comprehensive water planning document that represents the challenges and the goals of the Region. In Planning Partners meetings, the CVRWMG will promote water management priorities that meet various water supply and water quality objectives while still being compatible with existing and planned future land use designations.

Coachella Valley Water District

CVWD coordinates with land use planners within its service area on topics related to water and sanitation services. Most of the cities in CVWD's service area have adopted CVWD's Model Landscape Ordinance which sets water budgets for new development to encourage less turf and more drought tolerant landscaping. Also, CVWD partners with cities on programs like "Smart Controller" rebates where citizens can have efficient irrigation clocks installed at reduced cost.

CVWD is currently a participant on the Riverside County General Plan Advisory Committee for the Riverside County General Plan Update. This allows CVWD to have input on flood hazard mitigation

planning and water supply planning goals. CVWD also participates in Riverside County's monthly Land Development Committee meetings to share comments on projects with the County and developers.

Coachella Water Authority

The Coachella City Council also serves as Board of Directors for CWA. CWA staff attends the Coachella Water Authority/City Council meetings on a regular basis and participates in the city's land use and planning activities. CWA staff reviews and provides input for all land development projects within CWA's service boundaries.

The Coachella City Council also serves as Board of Directors for Coachella Sanitary District. All master planning for water supplies, wastewater collection and treatment, and stormwater management is done in coordination with the city's Engineering and Planning departments.

Desert Water Agency

DWA works closely with land use planners in its service area on topics related to water supply and recycled water use. DWA conducts plan checks for new development and participates in the preparation and approval of WSAs.

The City of Palm Springs operates a sewer system within its municipal boundaries, but DWA works with the city to obtain effluent for water recycling. The Palm Springs Office of Sustainability and DWA work together to encourage sustainable water use in the city.

DWA works closely with the Cities of Palm Springs and Cathedral City on the Model Landscape Ordinance in order to encourage native landscaping. DWA offers a Smart Irrigation Controller Program where the devices are available at no-cost to customers.

Indio Water Authority

IWA staff meets regularly with City of Indio land use planners and attends scheduled Planning Commission meetings, as needed, to coordinate water supply and wastewater activities.

Mission Springs Water District

MSWD's land use planning coordination includes the City of Desert Hot Springs, Riverside County, and the City of Palm Springs, as well as the Desert Edge Community Council. MSWD's Water Efficient Landscape Guidelines have been incorporated into the landscape ordinance of the City of Desert Hot Springs and MSWD staff provides landscape plan check services for tract development and in-fill projects.

Valley Sanitary District

VSD staff meets regularly with City of Indio land use planners and attends scheduled developmental review committee meetings at the City of Indio on topics related to sanitary sewer collection and treatment services and future recycled water abilities. VSD staff also meets regularly with the City of Coachella land use planners on topics related to sanitary sewer collection and treatment services for the portion served by VSD.

10.3.3 Future Efforts to Establish Proactive Relationships

The swift pace of development in the Coachella Valley in recent years has made it essential for water planners and land use planners in the Coachella Valley to work together through the development approval

process. As a result, land use planning agencies have become more informed regarding regional water challenges. *Section 10.2 Relation to Local Water Planning* identifies ways that the water planning agencies have reached out to one another and relevant stakeholders to coordinate on local water planning issues. In addition, coordination related to land use planning is equally important and will be addressed in the following ways:

- The CVRWMG is committed to maintaining purposeful, collaborative, and informed coordination with the land use planning agencies within the Coachella Valley. Such coordination occurs through the IRWM/SWR Plan itself given that the CVRWMG includes two agencies that are part of incorporated cities (CWA and IWA) and that several land use planning agencies are part of the Planning Partners. In addition, as explained in prior sections, the CVRWMG coordinate with land use planners to develop WSAs, develop UWMPs, and during development of groundwater management plans.
- As applicable, the CVRWMG will also work with local regulatory agencies such as the RWQCB and Riverside Department of Environmental Health on development and implementation of IRWM/SWR projects that require permits and other approvals from such agencies. As discussed in detail in *Chapter 4 Disadvantaged Communities,* the project concepts that were developed through the DAC Outreach Program involved considerable coordination with regulatory agencies to ensure that permitting and other components of the projects were consistent with applicable regulatory requirements.
- As General Plans for local cities and the County are updated in the future, it is important that water planners (including the CVRWMG agencies) continue to be involved to ensure that the water planning goals of the Region are represented in and supported by land use and development plans.
- In Specific Plans, it is also important that water planners continue to be involved early in the process to ensure that developers have a thorough understanding of available water supplies, flood hazards, and the infrastructure costs and needs of their developments.
- As development approvals are processed, coordination with water planners through development of WSAs will continue to be essential for ensuring adequate water supplies to meet future demand.
- This review and approval process by local utilities (water supply, wastewater, storm drainage, and flood control) will also continue to occur during development of project-level CEQA documentation.

As noted above, the ongoing IRWM Program will provide the Region's water and land use planners with an established forum to engage in discussions about water management topics. The quarterly Planning Partners meetings, which include both water managers and land use planners, are designed to discuss regional water issues and concerns. This improved interaction between water managers and land use planners will advance implementation of the IRWM/SWR Plan by keeping the group informed about critical issues and needs.

11 Framework for Implementation

Integrated Regional Water Management (IRWM) Standards: *This chapter addresses the following topics related to Plan implementation: the* ***Impacts and Benefits Standard****, Climate Change Mitigation Strategies, the* ***Data Management Standard****, the* ***Plan Performance and Monitoring Standard****, and the* ***Finance Standard****.*

Stormwater Resource Plan (SWRP) Requirements*: This chapter addresses the* ***Implementation Strategy and Schedule*** *components of the Plan, including financing, data management, and performance monitoring.*

11.1 Impacts and Benefits

This section contains a discussion of potential impacts and benefits of Plan implementation.

The Coachella Valley Regional Water Management Group (CVRWMG) acknowledges that implementation of the Coachella Valley IRWM/Stormwater Resource (SWR) Plan could potentially result in regional and localized impacts and benefits that must be addressed as part of the IRWM/SWR planning process. The sections below give an overview of potential impacts and benefits associated with a variety of IRWM/SWR project types. The project types presented here are considered those which are most likely to be implemented in the Coachella Valley given current knowledge. Any project that is funded through the IRWM Program or Stormwater Grant Program (SWGP) will be analyzed by the CVRWMG and the State Water Resources Control Board (SWRCB), respectively, as part of the grant application process, and with subsequent environmental review that will be completed prior to construction of any project or program put forth in this IRWM/SWR Plan. The potential benefits and impacts described in this chapter are not limited to a specific area, and can potentially affect disadvantaged communities (DACs) and tribal communities and have inter-regional effects. These potential benefits and impacts will be re-evaluated during future IRWM/SWR Plan updates, just as they were re-evaluated during development of the 2018 IRWM/SWR Plan.

11.1.1 Overview of Benefits

The types of projects that are funded through the Coachella Valley IRWM Program are expected to produce regional benefits that include improved water management coordination, enhanced water supply reliability, water quality improvement, groundwater improvement, flood control enhancement, ecosystem improvement, enhanced public safety, enhanced recreation and public access, increased public education and environmental awareness, and general economic benefits. The types of projects that are funded through the SWGP are expected to produce benefits that include increased water supply reliability, enhanced water conservation, increased infiltration and/or treatment of runoff, increased urban green space, decreased flood risk, reduced sanitary

sewer overflows, and reduced energy use and greenhouse gas (GHG) emissions, nonpoint and point source pollution control, reestablished natural water drainage and treatment, environmental and habitat protection, public education, community involvement, and enhanced or new recreational and public uses benefits The projects funded through these efforts will help achieve the designated IRWM/SWR Plan goals of:

1. Optimizing water supply reliability,
2. Protecting or improving water quality,
3. Providing stewardship of water-related natural resources,
4. Coordinating and integrating water resource management, and
5. Ensuring cultural, social, and economic sustainability of water in the Coachella Valley.

As described in *Chapter 9 Project Evaluation and Prioritization*, the implementation projects included in the online project database incorporate a wide range of resource management strategies to achieve the IRWM/SWR Plan goals and objectives. The projects would thus result in many long-term regional and inter-regional benefits.

Table 11-1 summarizes the potential long-term benefits associated with IRWM/SWR Plan implementation; each of the anticipated benefits is described in detail in the following sections. The benefits of implementing this IRWM/SWR Plan have been assessed by analyzing the types of projects that may be funded and implemented by the IRWM Program or SWGP. A more detailed evaluation of potential benefits may be undertaken as required during potential future IRWM and SWGP funding opportunities. The benefit categories listed in **Table 11-1** as well as project types and components were derived from the types of projects currently included within the online project database as well as the types of benefits that have been demonstrated by projects that have been implemented through the IRWM Program.

Water Management Coordination

Implementation of the IRWM/SWR Plan will allow for increased water management coordination among agencies in evaluating and selecting priority projects from the online project database. The following types of projects will directly support increased water management coordination:

- Projects that document and evaluate regional data management and coordination needs,
- Source identification studies that identify specific water quality problems that may require inter-agency or regional resolution,
- Feasibility studies that identify and assess future water management options,
- Groundwater recharge and source substitution projects which protect existing groundwater supplies, and
- Stormwater projects that provide multiple benefits such as water supply benefits, flood management benefits, and compliance benefits that will serve all agencies.

Improved water management coordination can benefit all communities in the Coachella Valley IRWM Region (Region), including DACs and tribes, and benefits could extend beyond the Region. For example, statewide or interregional benefits may be realized if a project is used as a model by other regions, results in decreased energy consumption, or reduces potential future demand for imported water. To-date, several of the projects that were selected for grant funding through the Coachella Valley IRWM Program will support increased water management coordination. For example, the *Regional Water Conservation Program* is an integrated project that is being implemented among the five CVRWMG water agencies.

Conservation: Outreach and Education *(Water Management Coordination)*

Regional Water Conservation Program

The Regional Water Conservation Program was a collaborative project by the five water agencies of the CVRWMG. This project was initially funded through a Proposition 84-Round 1 Implementation Grant and utilized knowledge gained from individual agency water conservation efforts to improve water conservation outreach in the Region as a whole. The program implemented six strategies to improve water conservation in the Region: outreach; water audits; WaterWise program; leak detection program; water workshops; and subsidies for smart irrigation controls, turf replacement, sprinkler upgrades, and efficiency upgrades and retrofits.

Through this program, agencies had flexibility to tailor their efforts to the needs of their customers, while achieving a common goal of water conservation, increasing collaboration with each other, and creating opportunities that arise from increased communication and collaboration between agencies.

Screenshot from the CVRWMG's Regional Water Conservation Program Website (www.cvwatercounts.com)

Table 11-1: Summary of Potential Long-Term Benefits for Proposed Projects

Project Type	Project Component	Potential Long-Term Benefits										
		Water Management Coordination	Water Supply Reliability	Water Quality Improvement	Groundwater Improvements	Flood Control Enhancement	Ecosystem Improvement	Reduced Energy Use	Enhanced Public Safety	Enhanced Recreation and Public Access	Public Education and Environ-mental Awareness	Economic Benefits
Groundwater	Groundwater Supply Development	●	●	○	●		○		○		○	●
	Conjunctive Use	●	●	○	●			●	○		○	●
	Brackish Groundwater Demineralization		●	●							○	●
Potable Water Supply	Conveyance Facilities		●		●				●		○	○
	Storage Facilities or Storage Operations		●		●				●		○	○
	Treatment Facilities	○	●	●	●				○		○	○
	Salinity Management	●	○	●	○		○	○			○	○
Conservation	Outreach and Education	●	○		○		○		○		●	○
	Economic Incentives	○	○		○		○	○	○		●	●
Wastewater	Conveyance Facilities		●	○	○		○	●	●		○	○
	Treatment Facilities	○	●	●	●		●		●		○	○
	Septic to Sewer Conversion		○	●	●		●		●		○	○
Non-Potable Water	Conveyance Facilities		●					●			○	○
	Treatment Facilities		●	●							○	○
	Salinity Management	●	○	●	○			○			○	○
Urban Runoff Management	Stormwater Capture and Recharge	●	●		●	●	○	●	○		○	●
	Diversion to Sewer		○	●		●					○	

Table 11-1: Summary of Potential Long-Term Benefits for Proposed Projects

Project Type	Project Component	Potential Long-Term Benefits										
		Water Management Coordination	Water Supply Reliability	Water Quality Improvement	Groundwater Improvements	Flood Control Enhancement	Ecosystem Improvement	Reduced Energy Use	Enhanced Public Safety	Enhanced Recreation and Public Access	Public Education and Environ-mental Awareness	Economic Benefits
	Pollution Prevention			●			●	○	○		○	○
Flood Management	Storm Drains or Channels	●			●	●			●		○	○
Ecosystem Restoration and Protection	Land Conservation	●		●		●	●	○			○	○
	Invasive Species Removal			●		●	●				○	○
	Restoration/ Re-vegetation			●		●	●				○	○
Water-Based Recreation	Reservoir Recreation						○			●	○	○
	Parks, Access and Trails						○			●	○	○

● Project type will likely generate this benefit *directly*
○ Project type will likely generate this benefit *indirectly*

Water Supply Reliability

The reliability of the Region's water supply system can be enhanced by projects that: (1) provide for greater water supply diversity and greater local water supply, and (2) increase the flexibility, capacity, and redundancy of the Region's water supply infrastructure. Selected projects will address water supply reliability as it is a top goal for the Region. Projects that improve water supply diversity and increase the contribution of local sources within the Region's water supply portfolio include:

- Water conservation projects,
- Water supply pipelines and water systems,
- Water system tie-ins, interconnections, and diversion structures,
- Projects that support water transfers,
- Construction of groundwater treatment and extraction facilities,
- Increasing water storage, conveyance, or treatment capacity,
- Projects that study or utilize brackish groundwater desalination,
- Upgrading wastewater treatment plants to produce recycled water,
- Recycled and other non-potable water projects,
- Water conservation, landscape water use efficiency, or incentive programs,
- Improve agricultural drainage, water reuse, or management,
- Water quality protection projects that improve the usability and treatability of existing water supplies, and
- New or upgraded MS4 systems that include retention and infiltration.

Increased water supply reliability benefits all water users, including DACs and tribes in the Region, by protecting their ability to access and use water. Additionally, reliable water supplies can result in stable water prices, which can provide a greater benefit to DACs as these populations tend to spend a greater proportion of their income on water supplies than non-DACs. Increased water supply reliability may also reduce the Region's potential for future increased imported water, benefitting other regions in the state. The *Non-Potable Water Use Expansion Program*, funded in the Region's Proposition 84-Round 2 Implementation Grant application, will contribute to water supply reliability by providing non-potable water to irrigation users. Using non-potable water for irrigation protects groundwater levels by reducing onsite groundwater pumping, and can help to stabilize regional groundwater levels and contribute to reducing groundwater overdraft. Supply reliability projects funded in the Region's Proposition 84-Round 4 Implementation Grant application include the *Mission Springs Water District (MSWD) Water Supply Reliability Program* and the *Regional Turf Reduction Program.* The *MSWD Water Supply Reliability Program* will implement two high-priority project components in MSWD's service area to address long-term water supply reliability. These components include implementation of a weak base anion treatment system at Well 29, which will allow MSWD to operate the well and ensure compliance with chromium-6 regulations, and an advanced metering pilot project that will install 100 advanced meters and analyze data over a 1-year period to determine if advanced metering is an appropriate and cost-effective method for conserving water in MSWD's service area.

The *Regional Turf Reduction Program* is a multifaceted program that made turf rebates available throughout Desert Water Agency's (DWA's) and Coachella Water Agency's (CWA's) service areas for a

variety of sectors including residential (single-family and multi-family), commercial, and municipal. This program assisted DWA and CWA in effectively managing groundwater by reducing demands from turf irrigation.

Water Conservation: Turf Reduction Incentive Program *(Water Supply Reliability)*

Regional Turf Reduction Program

The ***Regional Turf Reduction Program***, which was included in the Region's Proposition 84-Round 4 Implementation Grant application, is building upon regional conservation efforts that are being implemented by all five public water suppliers included within the CVRWMG. The program is an extension of existing turf rebate programs and has extended rebates to high-demand areas within DWA and CWA's service areas. The program has made turf rebates available to encourage replacement of turf grass with diverse, desert-friendly landscaping. By providing turf reduction rebates, water demands from DWA and CWA customers have been reduced, which assists the agencies in effectively managing groundwater to help ensure the long-term sustainability of the groundwater basin by maintaining its capacity. Finally, by reducing demands on groundwater, this project has made more groundwater available for other users, thereby increasing their water reliability.

Residential turf replacement, DWA Turf Buy Back Program.

Water Quality Improvement

Protecting and improving water quality is one of the goals of this IRWM/SWR Plan. Different types of projects can contribute to water quality improvements, including:

- Pollution prevention and stormwater controls,
- Building or upgrading wastewater treatment plants/technologies,
- Groundwater quality monitoring and assessment,
- Conversion of septic systems to municipal sewers,
- Construction of sewer collection and interceptor facilities,
- Capture and treatment of stormwater/urban runoff,
- Salinity management, and
- Other point source identification and control projects.

Implementation of pollution prevention and stormwater management projects could also reduce the volume of urban runoff conveyed to surface waters. Water conservation projects and recycled water projects could

also reduce the quantity of municipal wastewater discharged to the Coachella Valley Stormwater Channel (CVSC). Other types of projects such as habitat preservation or land conservation projects will also provide water quality benefits.

Because the Region primarily relies on groundwater for its water supply, benefits to groundwater quality would benefit the Region as a whole, including tribes and DACs. Tribes and DACs that are dependent upon well water (groundwater from private wells rather than municipal water systems) would especially benefit from improved groundwater quality because private well water may not be treated prior to use. The *Groundwater Quality Protection Program for Desert Hot Springs* (see Economic Benefits discussion below) and the Proposition 84 – Round 2 Implementation Grant-funded project *Groundwater Quality Protection Program – Sub-area D2* will contribute to water quality improvements by reducing water constituents that can leach into groundwater from septic systems. MSWD will be implementing additional phases of this program including the Groundwater Quality Protection Program – Sub-areas H & I. The planning and engineering components of Sub-areas H & I are being funded under the Colorado River Funding Area's (CRFA's) Proposition 1 Disadvantaged Community Involvement (DACI) Grant application. The *Regional Well Retrofit and Abandonment Program,* which was funded in the Region's Proposition 84 – Round 4 Implementation Grant application, provides rebates across the Region that will fund up to 80% of the total costs needed to properly seal or destroy wells that are currently improperly sealed or abandoned. Additional rebates are being provided under this program to fund retrofits to wells for inclusion in the existing California Statewide Groundwater Elevation Monitoring (CASGEM) network.

Wastewater: Septic to Sewer Conversion *(Water Quality Improvements)*

Groundwater Quality Protection Program – Sub-area D2

The Groundwater Quality Protection Program for Sub-area D2 within Desert Hot Springs is a septic-to-sewer conversion program that aims to extend sewer service to septic users to reduce septic tank density and retire aging or damaged septic systems. This project was included in the Region's Proposition 84 – Round 2 Implementation Grant, which was awarded full funding as of January 2014. The project was completed in March 2017 and installed approximately 21,900 linear feet of sewer together with 493 service laterals, and replaced 382 existing on-site septic systems with connections to the newly constructed sanitary sewers.

The Regional Water Quality Control Board has identified water quality issues related to failing and/or densely located septic systems within the Colorado River Basin, and has specifically noted that certain areas in the Region should convert septic tanks to sewer systems to improve water quality. In accordance with the Regional Board's directives, the project reduced the amount of contaminants percolating into the groundwater basin, which will protect the area from potential nitrate contamination.

Overview Map of Septic System in Sub-area D2

Groundwater Improvements

Due to the Region's reliance on groundwater supplies and the current overdraft condition in the Coachella Valley Groundwater Basin, implementation of groundwater improvements are a priority of this IRWM/SWR Plan. Groundwater improvement programs may include projects to enhance:

- Conjunctive management and groundwater storage,
- Aquifer storage and recovery,
- Stormwater capture and recharge,
- Installation of groundwater recovery wells,
- Construction of new and/or rehabilitation of spreading grounds,
- Improvements in groundwater monitoring, and
- Hydrogeologic investigations and groundwater modeling.

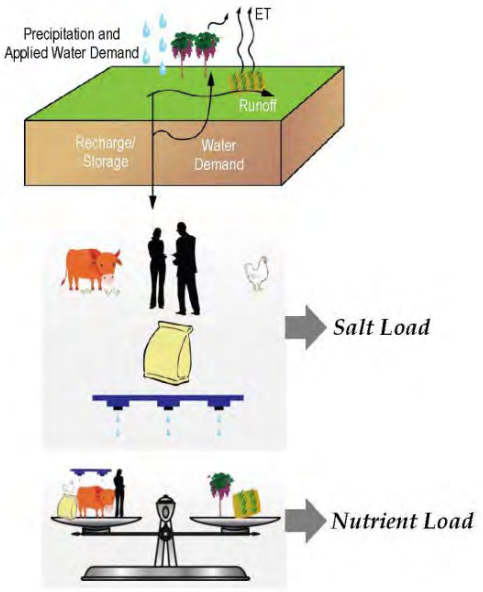
As with groundwater quality improvements, the entire Region (including DACs and tribes) would benefit from groundwater improvements such as decreased overdraft and improved groundwater quality. Areas outside of the Region could also benefit from reduced groundwater overdraft due to decreased potential of future demand for imported water necessary to manage overdraft. Groundwater quality will be protected and potentially improved through implementation of the Coachella Valley Groundwater Basin *Salt and Nutrient Management Plan*, which was completed by Coachella Valley Water District (CVWD), DWA, and Indo Water Authority (IWA) in June 2015. The *DAC Septic Rehabilitation and Demand Reduction Project*, which was funded by the Region's Proposition 84-Round 4 Grant, will fund rehabilitation of septic systems and implement greywater systems to reuse available local water sources. Rehabilitation of aging or failing septic systems will improve groundwater quality, while the greywater systems will reduce demands on potable water for non-potable uses, which will result in less groundwater pumping and assist in groundwater management.

Non-Potable: Salinity Management *(Groundwater Improvements)*

Coachella Valley Salt and Nutrient Management Plan

The Coachella Valley Salt and Nutrient Management Plan was initiated in 2012 through the stakeholder and technical evaluation process implemented for the 2014 IRWM Plan Update (refer to *Chapter 10 Agency Coordination*). Phase I, which involved coordination with interested stakeholders to develop a work plan for a Salt and Nutrient Management Plan in accordance with the Recycled Water Policy, was completed in early 2013. Phase II involved development of a standards-compliant Salt and Nutrient Management Plan. The *Coachella Valley Groundwater Basin Salt and Nutrient Management Plan* was completed in June 2015.

Implementation of the Salt and Nutrient Management Plan will result in multiple groundwater improvements, including both water quality and water supply benefits. The Salt and Nutrient Management Plan will result in water quality benefits as it will analyze salt and nutrient loading and result in implementation items necessary to manage these constituents for sustained long-term use of the Region's groundwater basin. The Salt and Nutrient Management Plan will result in water supply benefits as it will allow recycled water purveyors to continue to use recycled water by ensuring that the Region is in compliance with the Recycled Water Policy. Therefore, implementation of the Salt and Nutrient Management Plan will ensure that recycled water use is sustained in the Region and that additional groundwater pumping is not necessary to offset recycled water demands.



Potential sources of salts and nutrients in groundwater were assessed in the Salt and Nutrient Management Plan

Flood Control Enhancement

In the late 1970s, severe flood damage occurred to homes and businesses in several of the Coachella Valley's cities. As a result, flood control infrastructure was constructed in the early 1980s with the help of the U.S. Army Corps of Engineers and local funding. There are still several areas of the Coachella Valley that lack flood control facilities and are vulnerable to devastating alluvial and riverine flooding. To avoid possible economic consequences and human fatalities from extreme flooding events, it is important to implement projects that improve flood control in the Coachella Valley. Flood control enhancement may be provided by project components that involve:

- Stormwater collection, diversion, or capture,
- Improving levee systems (e.g., floodwalls, raising levee heights, setback levees, etc.),
- Floodplain protection or management,
- Low impact development,
- Porous pavement or weather-based irrigation replacement projects, and
- Construction of regional flood control infrastructure.

Flood control enhancements would benefit the Region as a whole, including DACs and tribal communities located in flood zones, especially in the Eastern Coachella Valley (from Oasis to Salton City) where there is not currently flood protection infrastructure. Flood control would also benefit the state, which would have reduced costs for flood recovery in the event of a flood event in the Region.

Ecosystem Improvement

With a decrease in the total acreage of available habitat in Coachella Valley, the range and mobility of species has been adversely affected due to urban development. Proposed projects that deal with conservation and restoration have the ability to enhance the Region's ecosystems and protect endangered and threatened species. The following types of projects are considered:

- Land conservation and preservation projects that would sustain existing habitats and provide important wildlife linkages and corridors,
- Water quality protection projects that result in surface water quality improvement and improved compliance with water quality standards,
- Stormwater management and pollution prevention, including Best Management Practices (BMPs),
- Debris cleanup and habitat restoration,
- Creation of wetlands, buffers, or other habitat, and
- Invasive species removal and control.

The *San Antonio del Desierto DAC Sewer Extension Project* will provide ecosystem improvements by decommissioning faulty open sewage treatment lagoons that potentially impact local ecosystems by leaching untreated wastewater to the Salton Sea and the Torres-Martinez Wetlands located adjacent to the Salton Sea.

Wastewater: Conveyance System *(Ecosystem Improvement)*	
San Antonio del Desierto DAC Sewer Extension Project The San Antonio del Desierto Mobile Home Park, an economically disadvantaged mobile home park located in the eastern Coachella Valley, houses approximately 400 people. The mobile home park currently relies on anaerobic wastewater treatment lagoons for sewage treatment and disposal. The lagoons lack proper lining, are sited near residences, and have unstable dikes. They also have a history of leaking and breaching their dikes, allowing contamination of the surrounding area. There has been concern that contamination from the lagoons may impact local habitat and native species. Due to the lagoons' location in the eastern Coachella Valley, possible drainage from the lagoons may flow to the Salton Sea via the CVSC or local agricultural drainages. Flows that enter the Salton Sea via the CVSC also come into contact with the Torres-Martinez Wetlands, an 85-acre freshwater-salt water habitat complex near the mouth of the CVSC, adjacent to the Salton Sea. The Sewer Extension Project, included in the Region's Proposition 84-Round 2 Implementation Grant application, would extend wastewater conveyance facilities to the mobile home park and retire the existing wastewater lagoons. The project would, therefore, provide benefits to wildlife and habitat within the Torres-Martinez Wetlands and the Salton Sea by removing a potential source of contaminants that may negatively affect these ecosystems.	 *Photo of the San Antonio del Desierto Mobile Home Park, directly adjacent to wastewater lagoons in foreground* *Credit: Sergio Carranza, Pueblo Unido Community Development Corporation*

Reduced Energy Use

Reducing energy consumption has benefits that may include cost savings, reduction of GHG emissions, protection of natural resources, and improved air quality and public health. Energy consumption can be reduced in multiple ways with implementation of projects that:

- Improve efficiency,
- Are designed to contribute towards water conservation goals,
- Reduce the level of treatment or the need to treat water supplies or discharges, and
- Improve water supply reliability and reduce the need to truck in water or rely upon bottled water.

Conjunctive use projects, such as the *Non-Potable Water Use Expansion Program* (described above), reduce energy consumption by reducing the need to treat water before its use. Instead of using potable water for irrigation, water from the Coachella Canal (Canal Water) and recycled water may be used, thereby reducing the amount of treatment required to provide water for irrigation. In-depth discussion of the benefits of reduced energy use is provided in *Section 11.2 Climate Change Mitigation/GHG Reduction*.

Enhanced Public Safety

Public safety and property protection will be enhanced by water and stormwater management projects that:

- Manage flood flows and risks in urbanized areas,
- Address source water control and protection,
- Replace faulty or failing equipment that could pose safety risks,
- Reduce bacterial pollution, and
- Decrease the potential for recreational-related public safety impacts.

Additionally, fire-fighting and public sanitation will be improved through water supply projects that improve the reliability and flexibility of the Region's water supply infrastructure (including treatment, conveyance, and storage facilities) to reliably deliver water and/or water supply projects that increase supply reliability through source diversity and use of local water sources.

Finally, many of the CVRWMG members have implemented, or are in the process of implementing, water and sewer consolidation or conversion projects throughout the Coachella Valley in an effort to enhance public safety by providing safe drinking water and eliminating acute public health concerns associated with surfacing sewage that results from aging or failing septic systems.

Enhanced Recreation and Public Access

Recreational opportunities that exist in the Region include parks, lakes, and community centers. Continuous population growth and development may result in a greater demand for recreational resources for additional residents. Coachella Valley water bodies that provide recreational opportunities include Lake Cahuilla. The native habitats surrounding the lake provide recreational activities such as hiking trails, bird watching, and fishing. Enhancing recreation and public access will require efforts that:

- Will increase lands available for recreation (through land preservation or conservation),
- Control invasive species, and
- Improve water quality.

Public Education and Environmental Awareness

Many water conservation and water quality protection projects include public education/environmental awareness components. Such programs are directed toward encouraging public support and awareness to:

- Promote and increase water conservation,
- Discourage illegal dumping of trash and litter in water bodies, and
- Encourage appropriate water management practices, including appropriate collection and disposal of hazardous liquid wastes.

Many projects included in the IRWM/SWR Plan include a public education or environmental awareness component. One such project is the *Short-Term Arsenic Treatment Project*, which incorporates public education as one of its main components. The public education provided by this project not only increases public awareness and knowledge regarding water quality for a local DAC, but also includes training aimed at empowering those DAC communities by building knowledge about how to protect and improve water quality through use of onsite treatment. The *Regional Well Retrofit and Abandonment Program*, which is currently being implemented by CVWD, offers rebates across the Region that fund up to 80% of the total

costs needed to properly seal or destroy wells that are currently improperly sealed or abandoned. Further, the rebate program will provide rebates to fund retrofits to wells for inclusion in the existing CASGEM network. The *Regional Well Retrofit and Abandonment Program* includes extensive public outreach and education efforts to inform stakeholders, and specifically DACs, about the program and benefits of properly sealing or destructing wells, as well as the benefits of CASGEM network.

Potable Water Supply: Treatment Facilities *(Public Education and Environmental Awareness)*

Short-Term Arsenic Treatment Project

The Short-Term Arsenic Treatment Project, funded through Proposition 84-Round 1 Implementation Grant, will install reverse osmosis treatment systems in the eastern Coachella Valley. The reverse osmosis systems will be designed to remove arsenic from onsite drinking water wells used in DACs. The project will improve drinking water quality and protect public health for the DACs as arsenic has been found in localized groundwater wells at levels that exceed the regulatory limits. In support of this Project, Pueblo Unido CDC has implemented a pilot project at the San Antonio del Desierto mobile home park, and travels throughout the Region educating communities about their water quality. This project trains families regarding how to properly monitor water quality and how to operate their decentralized onsite water systems, which will empower communities to properly manage and maintain their water systems in the future.

Reverse Osmosis System Used to Remove Arsenic from Drinking Water

Credit: Sergio Carranza, Pueblo Unido Community Development Corporation

Economic Benefits

Implementing many types of IRWM/SWR projects will result in economic benefits to the Region, including:

- Avoiding potentially economically significant impacts to the regional economy (business, industry, and agriculture) associated with water supply interruption,
- Tourism economic benefits associated with water quality improvement and enhanced recreational opportunities,
- Economic benefits associated with enhanced public safety and flood protection, erosion and sediment control, and
- Benefits to the regional economy and labor associated with constructing and maintaining reliable water infrastructure in the Region.

Another direct economic benefit of the IRWM/SWR Plan is that the planning process allows for implementing agencies and organizations to maximize existing resources by: (1) eliminating duplication or overlap among regional projects, (2) pooling resources to resolve common environmental or regulatory challenges, and (3) coordinating the development of regional data management systems that can be used to

improve project evaluation and effectiveness. Additionally, the IRWM/SWR Plan process allows regional agencies to more effectively secure outside funding.

Economic benefits will not only be provided to the Region as a whole but are likely to provide a proportionally greater benefit to DACs, by protecting jobs, creating new jobs, and potentially reducing costs. While all of the projects within the IRWM/SWR Plan will play a role in benefitting the economy by improving water management issues within the Coachella Valley, specific projects such as the *Groundwater Quality Protection Program – Desert Hot Springs* will have direct economic benefits by protecting the Desert Hot Springs Subbasin that is the cornerstone of the economy for the Desert Hot Springs Community (an economically disadvantaged community).

Wastewater: Septic to Sewer Conversion *(Economic Benefits)*

Groundwater Quality Protection Program – Desert Hot Springs

The MSWD Groundwater Quality Protection Program in Desert Hot Springs has been funded through both the Proposition 84 Implementation Grant – Round 1 for Area D-1 (light green) and was awarded funding under the Region's Proposition 84 Implementation Grant – Round 2 for Area D-2 (blue). The Groundwater Quality Protection Program is a septic-to-sewer conversion program that will extend sewer service to septic users in an effort to retire aging and damaged septic systems.

By replacing septic systems with sewer connections, the project will eliminate potential concerns regarding contamination from septic systems leaching into the local groundwater aquifer. Eliminating these concerns in the Desert Hot Springs area is particularly important as the Desert Hot Springs Subbasin contains naturally hot, mineral-rich water that provides the basis for the area's spa economy. Given that Desert Hot Springs is a DAC, impacts to the spa industry due to concerns with water quality would be particularly detrimental to the local economy.

Overview map of Desert Hot Springs subareas that have been or are currently being consolidated through the Groundwater Quality Protection Program

11.1.2 Overview of Impacts

Negative impacts that may be associated with the proposed IRWM/SWR projects are similar to any other water infrastructure project and include (1) short-term, site-specific impacts related to site grading and construction, and (2) long-term impacts associated with project operation. Construction-related impacts associated with implementing physical facilities may include, but are not limited to, traffic, noise, biological resources, public services and utilities, cultural resources, and aesthetics. As with benefits, impacts may affect DACs or tribes, the Region as a whole, and other regions, depending on the nature of the individual projects.

Projects will be evaluated individually to assess the geographic extent of potential impacts prior to implementation. The IRWM project selection process for the Region includes an evaluation of the potential impacts that projects have specifically to DACs; therefore, such impacts are taken into consideration in the regional project selection process.

Table 11-2 summarizes potential impacts associated with the implementation of key project elements within priority projects. Operation of proposed IRWM/SWR projects may result in water quality degradation, ecosystem disturbance or habitat degradation, groundwater reliability, increased energy consumption, land use compatibility issues, the need for additional infrastructure, and economic impacts. However, the goals and objectives of the Coachella Valley IRWM/SWR Plan are to protect these resources, thus, significant efforts will be made to limit impacts. Such impacts may result from:

- Effects of groundwater supply projects on groundwater-dependent vegetation,
- Treatability and quality of water from new supply sources,
- Effects of recreation on raw water supplies within surface water reservoirs,
- Surface conveyance and surface storage operations and associated impacts on riparian habitat,
- Effects of flood control projects on erosion, sedimentation, and water quality,
- Waste discharge issues associated with sludge, brine management and brine disposal, and
- Increased wastewater residuals (biosolids) generation associated with upgraded water, recycled water and wastewater treatment.

Project-specific and/or programmatic environmental compliance processes per the California Environmental Quality Act (CEQA) and, if applicable, the National Environmental Policy Act (NEPA) will evaluate the significance of project-related impacts. Impacts concluded as being significant must be mitigated to a level of non-significance (unless the lead agency makes findings of overriding consideration). In addition, project proponents seeking Proposition 1 IRWM or SWGP grant funding shall also notify tribal entities prior to the adoption of CEQA or NEPA documentation, where traditional tribal lands are within the area of the proposed project (PRC §75102). All projects implemented through the IRWM Program and SWGP will be in compliance with any and all applicable laws and regulations. Therefore, it is anticipated that mitigation measures resulting from compliance will offset or minimize potential impacts.

Water Quality Degradation

Water quality degradation impacts can occur to groundwater, surface water, runoff, and receiving waters. Water quality degradation does not indicate that waters will be in violation of water quality standards, but that the water quality may decline from its present conditions with implementation of certain projects. The primary determination of potential for water quality degradation lies in the quality of water entering the environment compared to the quality of existing water. For example, brine discharges to the Salton Sea may not degrade water quality in the Salton Sea (for salinity) if the salinity in the Salton Sea is higher than that of the brine. One of the objectives of the Coachella Valley IRWM/SWR Plan is to *protect groundwater quality and improve, where feasible* (refer to Objective E in *Chapter 6 Objectives* for more information); therefore, substantial efforts will be made to avoid water quality degradation. Examples of how water quality may be degraded by projects include:

- Construction projects that result in substantial runoff,
- Treatment facilities that increase volume of discharges or decrease the quality of discharges,

- Salinity management efforts may impact receiving water through disposal of brine or other discharge byproducts,
- Storm drains or channels installed for flood control purposes may increase sedimentation and decrease water quality, and
- Other sources of or contributing factors to sedimentation may decrease water quality. This could include invasive species removal and restoration/re-vegetation (during vegetation removal and establishment), and increased recreation along waterways.

Table 11-2: Summary of Potential Long-Term Impacts for Proposed Projects

Project Type	Project Component	Potential Long-Term Impacts						
		Water Quality Degradation	Ecosystem Disturbance/ Habitat Degradation	Groundwater Reliability Impacts	Increased Energy Consumption	Land Use Compatibility	Additional Infrastructure	Economic Impacts
Groundwater	Groundwater Supply Development	●	●	●				
	Conjunctive Use	●	○	○				
	Brackish Groundwater Demineralization	●	●		●		●	○
Potable Water Supply	Conveyance Facilities		●		○	●	●	○
	Storage Facilities or Storage Operations		●			●	●	○
	Treatment Facilities	○			●	●		
	Salinity Management				●		●	○
Conservation	Outreach and Education		○					
	Economic Incentives		○					
Wastewater	Conveyance Facilities		●			●		
	Treatment Facilities	●	●		●			○
	Septic to Sewer Conversion				●		●	○
Non-Potable Water	Conveyance Facilities	●	●			●	●	○
	Treatment Facilities	●			●	●	●	○
	Salinity Management	●						
Urban Runoff Management	Stormwater Capture and Recharge	●						
	Diversion to Sewer						●	○
	Pollution Prevention				○		○	○
Flood Management	Storm Drains or Channels	○	●			●		●
Ecosystem Restoration and Protection	Land Conservation			●				●
	Invasive Species Removal		●					●
	Restoration/ Re-vegetation		●					●
Water-Based Recreation	Reservoir Recreation	●					○	○
	Parks, Access and Trails	○	●					

● Project type will likely generate this impact *directly*
○ Project type will likely generate this impact *indirectly*

Ecosystem Disturbance/Habitat Degradation

Any ecosystem disturbance or habitat degradation deemed significant through CEQA or other regulatory processes will be mitigated as required by law. As such, any project with ecosystem disturbance or habitat degradation will remain in compliance with all applicable regulations. One of the objectives of the Coachella Valley IRWM/SWR Plan is to *preserve the water-related local environment and restore, where feasible* (refer to Objective G in *Chapter 6 Objectives* for more information); therefore, substantial efforts will be made to avoid ecosystem disturbance and habitat degradation. Projects that may cause ecosystem disturbances or habitat degradation that may require mitigation include:

- Projects that expand infrastructure such as pipelines, new or expanded storage facilities, or treatment plants,
- Projects that impact water quality of waters utilized for habitat or natural resources,
- Projects that may impact the availability of water in an ecosystem,
- Projects that involve removal of or changes to vegetation, and
- Projects that result in increased recreation in or use of natural areas.

Groundwater Reliability Impacts

Groundwater reliability may be impacted through changes in groundwater levels, changes in groundwater quality, and changes in groundwater availability that may present itself as a result of regulations, lawsuits, or other restrictions. Groundwater reliability impacts may be local in nature, particularly in regard to groundwater quality affecting availability of groundwater. One of the objectives of the Coachella Valley IRWM/SWR Plan is to *provide reliable water supply for residential and commercial, agricultural community, and tourism needs* (refer to Objective A in *Chapter 6 Objectives* for more information); therefore, substantial efforts will be made to avoid groundwater reliability impacts. Projects that may impact groundwater reliability include:

- Groundwater supply development if additional groundwater pumping exceeds recharge,
- Conjunctive use projects that may degrade groundwater quality below water quality standards,
- Projects that divert water previously used for recharge for other uses, potentially reducing groundwater levels, and
- Conservation projects that may impose limits on groundwater use in order to protect habitats or protected species.

Increased Energy Consumption

Some water management projects necessarily involve increased energy consumption. The benefits of projects that may increase energy consumption generally outweigh the impact of the increased energy consumption. Energy consumption has an associated series of impacts, including increased costs, gas airborne emissions, and use of natural resources. One of the objectives of the Coachella Valley IRWM/SWR Plan is to *maximize local supply opportunities, including water conservation, water recycling and source substitution, and capture and infiltration of runoff* (refer to Objective D in *Chapter 6 Objectives* for more information); therefore, substantial efforts will be made to maximize local supplies and avoid excess energy consumption. Reasonable efforts are made to avoid or minimize increased energy consumption in

compliance with all applicable laws and regulations, though some projects will involve increased energy consumption, such as projects that:

- Increase treatment levels or volume of water that is treated,
- Construct conveyance facilities that may require increased pumping, and
- Development that may require additional lighting or other facilities that use energy on an ongoing basis.

Land Use Compatibility

Land use compatibility impacts are related to conflicting land uses. Some projects may easily be contained within existing rights-of-way, and therefore would not impart land use impacts by making land unusable for certain users. Other projects that cannot be located in existing rights-of-way may require obtaining easements, purchasing or leasing lands, or altering project design to accommodate land use conflicts. One of the objectives of the Coachella Valley IRWM/SWR Plan is to *maximize stakeholder involvement and stewardship in water resource management* (refer to Objective J in *Chapter 6 Objectives* for more information); therefore, substantial efforts will be made to coordinate stakeholder involvement and avoid land use compatibility issues. Because land use compatibility impacts are very site-specific, this type of impact could potentially occur for any type of construction project.

Additional Infrastructure

The need for additional infrastructure to implement a project may have multiple impacts. Some of the impacts may include habitat disturbance, economic impacts due to construction-related, operations & maintenance, or other costs, land use compatibility, noise, and other impacts addressed through CEQA and other regulatory processes. As mentioned above, all projects will be in compliance with CEQA and other applicable regulations and impacts will be mitigated to the extent required by law. Projects that may require additional infrastructure include:

- Conveyance facilities,
- Treatment facilities,
- Flood control projects, and
- Increased recreation opportunities that may require additional recreation facilities.

Economic Impacts

Some projects may have long-term economic impacts resulting from increased operating costs, increased energy use, changes to potential land use, etc. One of the objectives of the Coachella Valley IRWM/SWR Plan is to *maintain affordability of water* (refer to Objective M in *Chapter 6 Objectives* for more information); therefore, substantial efforts will be made to reduce economic impacts that would reduce water affordability. Projects that may have economic impacts include:

- Land conservation that may remove land from potential future development and require funding for maintenance,
- Infrastructure improvements that may have ongoing operation and maintenance costs, and
- Changes to treatment levels or supply sources that increase the cost for agencies to supply water, therefore leading to economic impacts on customers and potentially the regional economy.

11.1.3 Benefits and Impacts of Plan Implementation

Regional Impacts and Benefits

Projects implemented through the IRWM Program or the SWGP help implement recommendations presented in the various water supply planning documents from throughout the Coachella Valley. Implementation of water conservation, groundwater, water transfer, desalination, and non-potable water projects within the Region are projected to reduce groundwater overdraft within the next 20 years. Implementation of the IRWM/SWR Plan will ideally conserve and diversify water supply portfolios in the Region. Groundwater and potable water supply projects that provide water supply reliability benefits would benefit DACs and tribal entities by improving access to drinking water supplies, improving groundwater basin management, improving groundwater and surface water quality, and providing economic benefits by reducing the costs in comparison to alternative water supplies (e.g., hauling). Projects related to arsenic treatment within drinking water supplies specifically pertain to DAC water-related issues within the Eastern Coachella Valley.

Potential impacts of IRWM/SWR Plan implementation could affect neighboring communities through a variety of construction-related impacts, including dust, noise, and traffic generation. Potential impacts to DACs and tribes may include increased costs associated with the provision of water infrastructure, and other construction-related impacts that apply throughout the Region. Potential negative impacts are described by project sponsors when submitting projects to the online project database. Other impacts may be identified further along in the environmental review process. Therefore, as the projects progress, careful consideration with regards to impacts will be taken prior to full implementation.

Inter-Regional Impacts and Benefits

Inter-regional benefits could potentially include increased water supply reliability (through transfers and conjunctive use arrangements with outside entities), groundwater and surface water quality improvement (particularly for discharges to the Salton Sea), flood control enhancement, ecosystem improvement, and economic benefits throughout the larger Coachella-Imperial subregion. However, the construction-related impacts listed within *Section 11.1.2 Overview of Impacts* would likely not be inter-regional impacts, because they are focused within the Coachella Valley.

In addition, the IRWM/SWR Plan could result in inter-regional benefits associated with the reduced reliance on the Sacramento-San Joaquin Delta by promoting and investing in projects and programs that would allow the Region to meet water demands with alternative sources of supply or demand management actions during times when imported supplies from the Delta are reduced or unavailable. The CVRWMG is committed to addressing future water demands by increasing water conservation and water use efficiency, expanding capture and infiltration of stormwater runoff, securing reliable water supplies, optimizing conjunctive use, expanding non-potable water capacity, and desalinating shallow brackish groundwater (refer to *Chapter 6 Objectives, Section 6.1.1 Determining Objectives* for more information about regional priorities included in the IRWM/SWR Plan).

Impacts and Benefits to Native American tribes and DACs

Many of the projects implemented through this IRWM/SWR Plan address critical water issues for tribes and DACs. As discussed in *Sections 3.1.9 Tribal Nations* and *3.1.10 Summary of Water Management Issues* and *Chapters 4 Disadvantaged Communities* and *5 Tribal Water Resources*, critical water needs for both DACs and tribes include affordability, connection to municipal water and sewer systems, drinking water

quality, water supply, and flooding and stormwater issues. As shown in *Sections 11.1.1 Overview of Benefits and 11.1.2 Overview of Impacts* above, many tribal and DAC projects have been funded and implemented through the Coachella Valley IRWM Program to address a variety of the aforementioned issues and needs. The CVRWMG and Coachella Valley IRWM/SWR stakeholders prioritize implementation of tribal and DAC projects, providing benefits to these communities through implementation of the IRWM/SWR Plan.

Challenges to Plan Implementation

Challenges to implementation of this IRWM/SWR Plan may hinder the Region's ability to maximize the collaborative water management efforts of program participants. There are many types of challenges to implementation, including funding (addressed in *Section 11.5 Finance*) and stakeholder support (discussed in *Chapter 7 Stakeholder Involvement*). Another significant challenge to implementation is regulatory restrictions and constraints that may reduce the level of benefits or increase regional impacts.

Grant Processing

Due to the California Department of Water Resources (DWR) requirements regarding IRWM funding disbursement, project proponents are required to expend funds and later be reimbursed by DWR. This process can be lengthy, and funding delays are not uncommon. Delays in reimbursement are particularly burdensome for project proponents that represent DACs, and have been noted by DAC stakeholders as an impediment to participating in the IRWM Program (refer to *Chapter 4 Disadvantaged Communities*). DWR has implemented an advanced payment option, which allows project proponents to receive the first 50% of the grant funding up front. The remaining 50% is reimbursed under the typical reimbursement requirements. Although this partially addresses the issues with the need to expend funds before receiving the reimbursement and delays in receiving reimbursements, receiving the remaining 50% of grant funding remains a burdensome process, particularly for DACs.

Additionally, the CVRWMG is not involved in managing the SWGP as it is with the IRWM grant program. The SWGP is a statewide competitive pursuit and there is no guarantee that entities within the Coachella Valley will receive SWGP funding for priority stormwater projects. Because the CVRWMG does not submit an application on behalf of the Region for the SWGP, each project sponsor must develop and submit SWGP grant applications individually. Stormwater projects in the region are currently implemented by project proponents for flood management and water quality (by MS4s). That aspect of individual project implementation will not change during implementation of the SWR Plan.

Regulatory Uncertainty

Other regulations that result in unfunded mandates may require agencies to undergo lengthy and expensive compliance processes in order to continue implementing water management activities. These regulations can be an impediment to implementation of the overall goals of the IRWM/SWR Plan as they may limit project implementation. An example of regulatory uncertainty that could impact the Region was the Maximum Contaminant Level (MCL) for chromium-6 of 10 micrograms per liter (µg/L), which was adopted in July 2014 but has since been invalidated. When the revised MCL was implemented, approximately 50% of the Region's wells fell out of compliance. Though the 10 µg/L MCL has since been invalidated, many agencies have spent significant amounts of funding on projects to bring the wells that have chromium-6 levels above 10 µg/L into compliance. The State Water Resources Control Board (SWRCB) is required to adopt a new MCL for chromium-6, leaving additional uncertainty until that time.

As such, the cost and time required to comply with changing regulations and standards is of significant concern.

11.2 Climate Change Mitigation/GHG Reduction

This section describes how Plan implementation can help to mitigate climate change by reducing energy consumption and ultimately reducing GHG emissions.

The proposed Coachella Valley IRWM/SWR Plan Resource Management Strategies (RMS) and the priority projects are expected to mitigate climate change by including energy-savings measures, BMPs, and other energy and GHG emissions saving features whenever feasible. *Chapter 8 Resource Management Strategies, Section 8.5 Adapting Resource Management Strategies to Climate Change* discusses further considerations related to climate change, including **Table 8-3**, which contains information regarding various RMS and their potential role in reducing GHG emissions.

Adaption to and mitigation for climate change were both factors included for consideration as part of evaluating projects submitted to the online project database. Project sponsors were asked to provide information about how their project mitigates for associated possible climate change impacts (e.g., GHG reduction strategies), and how their project adapts to future possible changes in climate (e.g., through project design). This information is available to the CVRWMG, Planning Partners, stakeholders, and members of the public through the online project database.

This IRWM/SWR Plan is not an appropriate document for analyzing project-level GHG emissions, given that project design and other project details for priority projects have not yet been vetted. As required by CEQA, all projects will undergo project-level GHG emissions analyses when they are evaluated as part of the environmental review process. Such project-level GHG emissions analysis will estimate GHG emissions from the project; establish significance criteria; identify those project components that may supply carbon sequestration; and, if applicable, explain how the project may help in the adaptation to possible effects of climate change.

11.3 Data Management

IRWM Standards: *This section fulfills the* ***Data Management Standard*** *and describes efficient use of available data, stakeholder access to data, and that data generated by IRWM implementation activities can be integrated into existing State databases.*

SWRP Requirements: *This section addresses the Data Management requirement for the SWRP by describing how data is collected, stored, accessed, assessed, and updated, as well as how data gaps will be identified.*

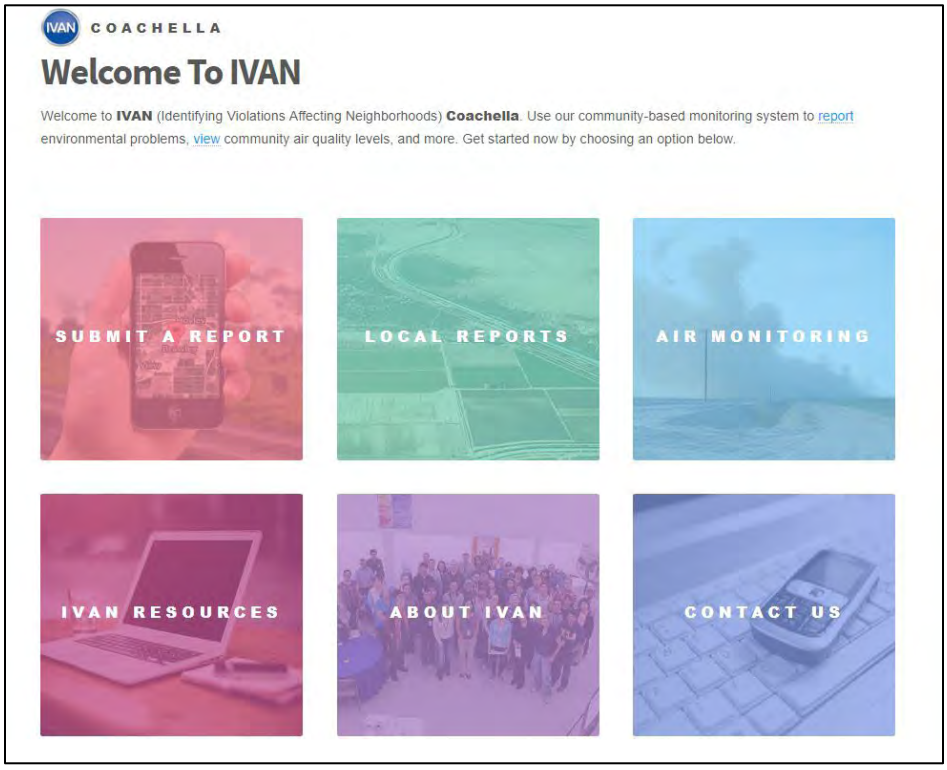
In preparation of the Coachella Valley IRWM/SWR Plan and in continued efforts of regional coordination, the collection and distribution of water management data is essential. The compilation of reports, records, intelligence, statistics and facts between the CVRWMG partners, as well as stakeholders, was vital to compiling the information necessary to create the IRWM/SWR Plan.

As the CVRWMG moves forward in regional planning and project implementation, the need for data management will continue to develop. As regional goals and priorities are addressed, the partners will share the responsibility and benefits of continued information gathering and sharing.

As described in earlier chapters of the IRWM/SWR Plan, data will be gathered at the project level to assess the performance goals and objectives. This will aid the Region in gauging success and progress through regional planning, as well as assist in creating a learning curve for future implementation. Regional monitoring data will also be collected and disseminated to support regional planning updates. The six partners are currently engaged in a variety of monitoring efforts.

The CVRWMG has created a Data Management System (DMS) to support integrated regional planning within the Region. Currently, the IRWM program website (www.cvrwmg.org) has a library of reports, studies, and information used during preparation of the IRWM/SWR Plan that serves as a DMS. The www.cvrwmg.org library will continue to contain documents prepared by the CVRWMG, as well as useful planning documents or links to those documents prepared by other agencies. Public access to the data involves downloading documents in PDF format. A "contact us" feature allows users to request data that is not online or inform the CVRWMG of data that is available but not accessible. In addition to the online DMS, there is an existing regional database called IVAN (http://ivan-coachella.org/) through which stakeholders can report issues such as water quality and septic system problems on an ongoing basis. The IVAN website is shown in **Figure 11-1** below.

Figure 11-1: IVAN Database



The process for collecting, organizing and sharing data is described in this chapter. In addition, the CVRWMG has identified data gaps and needs for the Region which may be addressed through IRWM/SWR planning. Note that for security and legal purposes, not all of the data referenced or used to develop this IRWM/SWR Plan may be publicly available via the online DMS.

11.3.1 Overview of Data Needs

Many types of data are required to effectively manage water resources, including information about water quality and quantity, flooding, demographics, climate patterns, water treatment, habitat types and locations, costs, infrastructure, and legal agreements. The CVRWMG partners have accumulated much of this data individually or in partnerships. In addition, substantial data was collected and evaluated as part of the technical evaluations that were conducted for this IRWM/SWR Plan Update; information regarding those evaluations is included in the following sections.

Groundwater Data

Groundwater is currently the largest source of water supply for the Region. The five water purveyors, as well as Myoma Dunes Water Company and other private pumpers, share the Coachella Valley Groundwater Basin and pump potable water from wells located in the Basin. Each agency is responsible for data collection from their individual groundwater wells, including groundwater quality information, and the agencies retain groundwater data for their systems as part of their groundwater monitoring efforts. Monitoring results are reported to both customers, through annual Consumer Confidence Reports, and regulatory agencies. Results are also incorporated into other reporting and planning efforts by the agencies.

Collecting groundwater data is vitally important in the Region to ensure adequate water quality and supply. To efficiently manage the groundwater basin, agencies must closely monitor this data and use it to evaluate future needs. Much of these data have already been compiled for development of the IRWM/SWR Plan, including groundwater elevation data which has been compiled and reported to the state as required by the CASGEM Program and groundwater quality data that was compiled as part of the DAC Groundwater Quality Evaluation (refer to *Chapter 10 Agency Coordination*).

Surface Water Data

Surface waters of the Region consist of the Whitewater River Stormwater Channel (WRSC) and principal tributaries to the WRSC, including the San Gorgonio River, Snow Creek, Falls Creek, Chino Creek, Mission Creek, Morongo Creek, Tahquitz Creek, Andreas Creek, Palm Canyon Wash, Deep Canyon Creek, and the Palm Valley Channel. DWA receives about 5% of its water supply (or 2,500 acre-feet per year (AFY)) through surface water sources, including Chino Creek, Snow Creek, and Falls Creek. DWA monitors this surface water supply and these data are included in its annual Water Quality Reports. Much of these data have already been shared by DWA to develop the IRWM/SWR Plan Update.

Stormwater Quality Data

Stormwater outfall and receiving water quality for the Whitewater River Region is monitored through the Whitewater River Region MS4 Permit and reported in the Whitewater River Region Monitoring Annual Reports. Water quality data from these reports was used to develop stormwater priorities for the Region and assist with stormwater project prioritization. Specifically, Section 3.5 of the Whitewater River Region Monitoring Annual Report for Monitoring Year 2015-2016 (RCFCWCD 2017) contains the analytical data results from the outfall and receiving water monitoring efforts that was used as part of the development of this IRWM/SWR Plan, as described in *Section 2.5.5 Stormwater Quality and Water Quality Compliance*. Monitoring and reporting requirements for the Whitewater River Monitoring Program are described in Section 3.1 of the Monitoring Annual Report, as well as in the Cities and County of Riverside Consolidated Monitoring Program, Volume V, Whitewater River Region Monitoring Plan (http://rcflood.org/downloads/NPDES/Documents/Monitoring/CMP_Vol_V.pdf) . Monitoring results are

updated annually in the Whitewater River Region Monitoring Reports and will be assessed with future IRWM/SWR Plan updates. Data from these monitoring reports was utilized to create the IRWM/SWR Plan Update.

Flood Control Data

Riverside County Flood Control and Water Conservation District (RCFCWCD) and CVWD are the Region's flood control districts. They operate and maintain a series of regional flood control facilities throughout the Coachella Valley. These two agencies also monitor and report data regarding flood control, which are used to ensure safety within the community. Flood control is important for safe development and building within the Region. Some areas of the Region do not have adequate flood control and collection of these data will allow the CVRWMG to identify gaps that need to be addressed. Much of these data have already been shared to develop the IRWM/SWR Plan, and additional data regarding flood hazards and flood management was analyzed in the Integrated Flood Management Study (refer to *Chapter 10 Agency Coordination*). Flood control data is incorporated into the DMS due to inclusion of the Integrated Flood Management Study in this IRWM/SWR Plan.

Habitat Data

The Coachella Valley Multiple Species Habitat Conservation Plan (CVMSHCP), developed by the Coachella Valley Association of Governments (CVAG) and approved by both the California Department of Fish and Wildlife (CDFW) and the U.S. Fish and Wildlife Service, is used to ensure preservation of protected land while protecting the Coachella Valley's ability to grow. The CVMSHCP covers almost the entire Region. Much of the CVMSHCP data have already been shared and utilized to create the IRWM/SWR Plan Update; as such, habitat data is incorporated into the DMS due to inclusion in this IRWM/SWR Plan, which is available on the www.cvrwmg.org website.

Demographic Data

The CVRWMG has used Riverside County, CVAG, and U.S. Census data as the basis for demographic information about the Region. In addition to these publicly available data sources, the IRWM/SWR Plan Update and associated DAC Outreach Program (refer to *Chapter 4 Disadvantaged Communities* for more information) have collected and analyzed substantial information to refine DAC mapping and gather other information about demographics in the Region.

Demographic data will be incorporated into the DMS, because the DAC Outreach Program mapping results, the technical evaluations completed for the IRWM/SWR Plan Update, and the IRWM/SWR Plan Update (containing a compilation of demographic data) is available on the www.cvrwmg.org website.

Feasibility Studies and Planning Efforts

Feasibility studies are essential for project implementation. Existing and planned projects will have accompanying feasibility and planning documents that the CVRWMG can use in its own planning efforts. As needs arise, the group will compile those studies, specifically for implementation grant submissions. Project proponents and developers are responsible for developing their own feasibility studies, which often include a water supply assessment. Planning efforts include a vast array of data including agency general and master plans, as well as planning efforts from other agencies within the Region. For example, all five water suppliers of the CVRWMG have completed 2015 updates of their Urban Water Management Plans (UWMPs) and are expected to re-update those plans again in 2020. In addition, as the adoption of the

Sustainable Groundwater Management Act (SGMA) in 2014 established new standards for groundwater management in California, CVWD, CWA, DWA, and IWA prepared the SMGA Alternative Groundwater Sustainability Plan Bridge Document for the Indio Subbasin and CVWD, DWA, and MSWD prepared the SGMA Alternative Groundwater Sustainability Plan Bridge Document for the Mission Creek Subbasin to demonstrate that *Coachella Valley Water Management Plan (WMP)* and *Mission Creek-Garnet Hill WMP*, respectively, are functionally equivalent to the requirements for a Groundwater Sustainability Plan (GSP).

Studies and plans related to the IRWM/SWR Plan Update and water management needs in the Region will be collected and incorporated into the DMS via the IRWM/SWR Plan Update. However, because of the vast amount of planning efforts within the Region, the DMS will not be able to include all planning documents that are produced but will incorporate them by reference in the IRWM/SWR Plan.

Historical Agency Information

Each agency has historical data about water quality, quantity, infrastructure, agreements and contracts and climate that could prove useful in future regional planning. The group will continue to compile that data and include it in the IRWM/SWR Plan Update and IRWM or SWGP-related materials such as grant applications as necessary. Historical information has a variety of uses within the Region that could aid the CVRWMG in future planning.

Historical data related to the IRWM/SWR Plan Update and water management needs in the Region will be collected and incorporated into the DMS via the IRWM/SWR Plan Update. However, because of the vast amount of historical data available throughout the Region, the DMS will not be able to include all of this information but will incorporate it by reference in the IRWM/SWR Plan.

Environmental Impact Reports

The information contained in both program and project-level Environmental Impact Reports (EIRs) for water management infrastructure has potential to be useful to the CVRWMG's planning efforts. Just as there are a large amount of planning and feasibility data in the Region, EIRs exist for numerous projects and agencies throughout the Region. EIRs will be included in the DMS as needed for the progress of future water management planning and will be incorporated by reference into the DMS through inclusion in the IRWM/SWR Plan or IRWM or SWGP documents such as grant applications.

Data Gaps

As described in *Section 11.4 Plan Performance and Monitoring*, below, the 2018 IRWM/SWR Plan will be assessed using the targets and measurements described in **Table 6-1 (**refer to *Chapter 6 Objectives*). While the targets and measurements in **Table 6-1** are adequate for evaluating performance, data gaps have been identified that would potentially improve the Region's ability to assess performance of IRWM and SWGP-funded projects and the IRWM Program.

During public review of the 2018 IRWM/SWR Plan, several stakeholders noted data gaps that exist in the Region and, if addressed, could potentially improve water management in the Region. Those data needs, which are described in detail below, are important to document within this IRWM/SWR Plan as they could potentially be addressed through implementation of IRWM/SWR projects that address such data gaps.

Land Subsidence Monitoring

A data gap noted by stakeholders pertains to developing appropriate groundwater level targets to protect against and limit subsidence (accomplished through understanding the level of compressible clays in the Region), and a more complete mapping of subsidence across the Region to establish baselines for different locations in the Coachella Valley. Specifically, stakeholders noted that more subsidence monitoring is needed in remote areas of the Eastern Coachella Valley.

Groundwater Quality Monitoring

Stakeholders have noted that more detailed information regarding the number and location of households that rely upon private groundwater wells with water that does not meet applicable regulatory standards as well as constituents of concern in those areas will improve the Region's ability to design projects to effectively address the most critical water quality concerns of the Coachella Valley and to assess the level of benefit such projects will or have had. In *Chapter 3 Issues and Needs,* it is noted that due to lack of testing and reporting on groundwater quality in private wells, regional understanding of water quality issues that are faced by DACs (particularly in the Eastern Coachella Valley) are likely under-stated and that additional testing in such areas would help to improve the regional understanding and prioritization of DAC water quality needs.

Stakeholders have also noted that it would be beneficial to monitor locations that have been retrofitted with short-term water quality treatment systems (such as onsite reverse osmosis systems) to ensure that such systems are removing constituents of concern to levels established by regulatory standards. While such monitoring is required for projects that are implemented through the IRWM Program (projects that receive IRWM funding) or the SWGP, other projects implemented in the Region may not regularly monitor or report such water quality results.

Mapping and Monitoring of Septic Systems

Stakeholders have noted that data gaps also exist pertaining to the number and location of failing or degraded septic systems in the Coachella Valley and whether these systems are contaminating groundwater, potentially impacting public health, or located within disadvantaged communities. Data on which residences are dependent on septic systems (both properly functioning and failing) would further improve the Region's understanding of wastewater issues and provide additional data to monitor water quality or other concerns that could be associated with septic systems.

Improperly Sealed Groundwater Wells

In conjunction with the *Regional Well Retrofit and Abandonment Program*, which fulfilled the IRWM/SWR Plan target to implement a program to properly seal groundwater wells, stakeholders have noted that it would be beneficial to map the wells in the Region that are not properly sealed to know the location and number of such wells.

Flooding and Flood Risks

Flood risks have been documented in this IRWM/SWR Plan, as well as other planning studies, but stakeholders have noted that an improved understanding of the total acreage at risk of flooding and to what degree these areas are at risk (potential level of floodwaters) would increase the Region's ability to evaluate and assess the potential and actual benefits of flood control and stormwater projects. The number of

properties or total area within the known flood risk areas that lack flood protection could also be documented to improve the understanding and need for flood control projects.

Mapping and Characterizing Disadvantaged Communities

Although the IRWM Program and the DAC Outreach Program have undertaken substantial efforts to map and understand the location and nature of DACs in the Coachella Valley, stakeholders have noted that additional data could be collected to better characterize and meet the needs of DACs in the Region. First, stakeholders have recommended that demographic data continue to be collected for DACs on an ongoing basis given that U.S. Census and other large-scale demographic data tend to undercount populations in DACs. Stakeholders have also noted that it would be beneficial to collect data on the ownership status of DAC households (owner vs. renter) to improve the Region's understanding of the site-specific issues and needs of DACs and also improve the ability to address DAC issues based on factors such as ownership status that may impact how issues are addressed. Stakeholders have also noted that an independent assessment of the results of the DAC Characterization Survey and Mapping effort (see *Chapter 4 Disadvantaged Communities* and **Appendix VII-B**) to validate or correct the self-reported issues and needs of DACs would help to strengthen the dataset collected during the survey and mapping effort. Data from unpermitted mobile home parks, unregulated water systems, and private wells in DACs (see *Groundwater Quality Monitoring*) would also improve the understanding of the extent of DAC-specific issues and needs in the Coachella Valley.

Through the Proposition 1 DAC Involvement (DACI) grant, a Colorado River Funding Area (CRFA)-wide DAC Needs Assessment will be prepared. Additional data will be collected through this effort to further define DAC needs within the Region. The CRFA DAC Needs Assessment is anticipated to be completed in 2020.

Stormwater

Although the Whitewater River Region Monitoring Reports provide a regular mechanism to document data related to stormwater outfall and receiving water quality for the Whitewater River Region, data gaps could still occur with other types of water quality monitoring data. These gaps could be noted by stakeholders if it is found that certain areas are not meeting applicable regulatory standards. Consequently, it could be found that additional testing in these areas would help to improve the understanding of stormwater outfall and receiving water quality needs. In addition, data gaps in stormdrain system mapping and public area mapping related to stormwater capture and retention potential could result as urban developments expand and evolve. In order to prevent these gaps from arising, municipalities must make sure these maps are updated as future development plans are implemented. Finally, data gaps have already been identified in SWRP project opportunities. Information such as quantified benefits and projected capital and O&M costs are expected to be refined as projects evolve from a conceptual planning phase to a point where they are ready to proceed. It can be assumed that project proponents will be able to measure SWRP benefits with greater specificity and accuracy as SWRP projects become more defined. An important consideration in data collection is the hydrology and precipitation patterns and seasonality in the Region, where many sampling sites cannot generate year-round data as they are often dry.

11.3.2 Data Collection Techniques

Knowledge of existing data has led to collection of much of what the CVRWMG has used during the IRWM/SWR planning process; however, a great deal of data discovery has and will continue to occur as

outreach is conducted to stakeholders and technical evaluations are completed for the IRWM/SWR Plan. Data collected by agencies and organizations for use in the plans and studies that informed the development of the IRWM/SWR Plan were presumed to be collected using defensible typical or standard data collection techniques.

The CVRWMG plans, reports, statistics and information described in *Chapter 10 Agency Coordination,* were compiled to create the Region Description and other technical components of the IRWM/SWR Plan Update. These plans, reports, statistics, and information are substantial and will be incorporated by reference in the IRWM/SWR Plan.

11.3.3 Stakeholder Contributions

Stakeholders in the Region possess a great deal of data that the regional planning effort could use. Stakeholder contributions could prevent duplication of efforts and research and that those contributions would be vital to planning process.

Through extensive stakeholder outreach, the CVRWMG was able to obtain significant data, as well as discover new reports, materials, and information that was useful in development of the IRWM/SWR Plan. For example, during outreach to the eastern Coachella Valley's DAC representatives, Poder Popular provided a copy of the *Coachella Valley Water Systems Assessment* (Rural Communities Assistance Corporation 2010), which evaluates four drinking water and wastewater systems in local DACs. Data were also contributed by stakeholders during the DAC Outreach Program's survey process, described in *Chapter 4 Disadvantaged Communities*.

Stakeholders in the Region have been forthcoming with their data and the Region has been able to add a wide variety of information to the online library based on those contributions. All stakeholders have access to program files, regional planning documents, and studies through the library located on the CVRWMG website.

11.3.4 Responsible Entity

The CVRWMG is the responsible entity for the DMS within the Region. At this time, one point person is assigned to maintain the program library (found at www.cvrwmg.org). All parties are responsible for uploading their data to the existing file sharing program.

11.3.5 Quality Assurance/Quality Control (QA/QC) Measures

A great deal of the reporting and monitoring currently conducted within the Region is monitored by regulatory bodies and held to standards that meet the policies of those bodies. For instance, Water Quality Reports are required annually by the U.S. Environmental Protection Agency (EPA); for data such as these, the CVRWMG will merely serve as a clearinghouse and will not conduct additional quality assurance/quality control (QA/QC).

Data that is collected for regional planning that is unregulated by a State or federal agency will be vetted for accuracy on an as-needed basis.

11.3.6 Regional Data Sharing

Technology has already led to a great deal of efficiency in data collection for the CVRWMG. During the Region Acceptance Process, the CVRWMG used a group website to share files, maps, and data that could

be used in completing the application. During IRWM/SWR Plan preparation, the CVRWMG relied on both email and a file sharing website to disseminate data to each other for purposes of creating the IRWM/SWR Plan.

The most useful technology for sharing has been the Region's website, www.cvrwmg.org, which houses a library of data that is accessible not only to the management group, but also to stakeholders. Information on the library is publicly available and can be accessed any time. For those stakeholders without internet or email access, information that is available on the CVRWMG website can be provided to stakeholders upon request.

11.3.7 Statewide Data Sharing

The partners in the CVRWMG adhere to regulatory guidelines of data management by providing the necessary data into State databases. Projects implemented under the IRWM/SWR Plan will provide necessary data as required to applicable State databases. These data are presumed to be collected and reported in a manner compatible with the respective database to which they will be reported, including:

- *California Environmental Data Exchange Network (CEDEN)* – CEDEN is a cooperative data exchange program designed to enable data sharing between participants. The database includes data on California waters provided by partners throughout the state. CEDEN can be accessed via: http://www.ceden.org/.
- *California Statewide Groundwater Elevation Monitoring Program*- Local water suppliers monitor and report groundwater elevations to CASGEM. CASGEM compliance may be required for funding eligibility. As discussed in *Chapter 10 Agency Coordination*, the Coachella Valley IRWM Region is in compliance with CASGEM. More information on CASGEM can be found at: https://water.ca.gov/Programs/Groundwater-Management/Groundwater-Elevation-Monitoring--CASGEM.
- *Water Data Library* – DWR maintains the State's Water Data Library (WDL) which stores data from various monitoring stations, including groundwater level wells, water quality stations, surface water stage and flow sites, rainfall/climate observers, and water well logs. Information regarding the WDL can be found at: http://wdl.water.ca.gov/.
- *Surface Water Ambient Monitoring Program* – The SWRCB created the Surface Water Ambient Monitoring Program (SWAMP). SWAMP has developed standards required for any group collecting or monitoring surface water quality data, using funds from Propositions 13, 40, 50, and 84. More information on the SWAMP is available at: http://www.swrcb.ca.gov/water_issues/programs/swamp.
- *Groundwater Ambient Monitoring and Assessment Program* – The Groundwater Ambient Monitoring and Assessment (GAMA) Program provides a comprehensive assessment of water quality in water wells throughout the State. The California Aquifer Susceptibility Assessment combines age dating of water and sampling for low-level volatile organic compounds to assess the relative susceptibility of public supply wells throughout the State. The Voluntary Domestic Well Assessment provides sampling of water quality in domestic wells, which will assist in assessing the relative susceptibility of California's groundwater to contaminants. Because water quality in individual domestic wells is unregulated, the program is voluntary and focuses, as resources permit, on specific areas of the State. Constituents analyzed include nitrate, total and fecal coliform

bacteria, methyl tert-butyl ether, and minerals. Additional information on the GAMA program is available at: http://www.swrcb.ca.gov/gama.

- *California Environmental Information Catalog* – The California Natural Resources Agency maintains the California Environmental Information Catalog (CEIC), a Statewide metadata clearinghouse for geospatial data. The online directory is used for reporting and discovery of information resources for California. Participants include cities, counties, utilities, State and federal agencies, private businesses, and academic institutions that have spatial and other types of data resources. The CEIC is accessible at: https://catalog.data.gov/dataset/california-environmental-information-catalog
- *Integrated Water Resources Information System* – DWR maintains the Integrated Water Resources Information System (IWRIS), which is a data management tool for water resources data and not a database. IWRIS is a web-based GIS application that allows entities to access, integrate, query, and visualize multiple sets of data simultaneously. Information on IWRIS is available at: http://wdl.water.ca.gov/iwris/.
- *California Environmental Resources Evaluation System* – California Environmental Resources Evaluation System (CERES) is an information system developed by the California Natural Resources Agency to facilitate access to a variety of electronic data describing California's rich and diverse environments. The goal of CERES is to improve environmental analysis and planning by integrating natural and cultural resource information from multiple contributors and by making it available and useful to a wide variety of users. CERES is available at: http://ceres.ca.gov/.
- *Storage and Retrieval Data Warehouse* – The Storage and Retrieval (STORET) data warehouse is used by the California EPA, the U.S. EPA, tribal nations, other federal agencies, universities, private citizens, and others. STORET primarily functions as a resource for water quality monitoring data and is available at: http://www.epa.gov/storet/.
- *DWR Sustainable Groundwater Management Act Portal* – DWR maintains the SGMA portal to allow local agencies, watermasters, and groundwater sustainability agencies (GSAs) to submit, edit, and access data required by SGMA. In addition, the SGMA portal makes this information available to stakeholders and other members of the public to view and provide comments, if applicable. The SGMA portal is available at: https://sgma.water.ca.gov/portal/.

The CVRWMG partners will continue to follow the regulatory data management requirements, as well as use the State DMS's above as examples in further development of the regional system.

11.4 Plan Performance and Monitoring

IRWM Standards: *This section complies with the* ***Plan Performance and Monitoring Standard*** *by including performance measures and monitoring to document progress toward meeting Plan objectives.*

SWRP Requirements: *This section describes how implementation performance measures will be tracked.*

This Coachella Valley IRWM/SWR Plan includes a Plan Performance and Monitoring framework to ensure that the Region (1) meets the IRWM/SWR Plan goals and objectives; (2) implements all projects included in this IRWM/SWR Plan; and (3) monitors each project to ensure compliance with all applicable rules,

laws, and permit requirements. Part of the Plan Performance and Monitoring framework involves the Coachella Valley IRWM/SWR Plan undergoing periodic review. This process involves assessing the effectiveness of the IRWM/SWR Plan implementation and adjusting the Plan implementation accordingly. This section describes the methods for assessing the Coachella Valley IRWM/SWR Plan and project performance and identifies project-specific monitoring plans.

11.4.1 Plan Performance

The Coachella Valley IRWM/SWR Plan will be assessed at both the plan and project levels. The IRWM/SWR Plan is framed around regional goals and objectives that contribute to the overall vision of water resources management within the Coachella Valley. Plan and project performance assessments are vital for evaluating how effectively they are achieving the regional goals and objectives. The methods that are to be used in assessing the project and plan performance are described below.

Evaluating Project Performance

Project proponents submitting implementation projects are considered the "Responsible Agency" for each project or program included in the IRWM/SWR Plan. The Responsible Agency is responsible for overseeing project implementation, providing ongoing assessment of project performance, and overseeing conformance with grant funding requirements. Each project proponent is responsible for implementing the project, developing the project-specific monitoring strategies, and overseeing monitoring activities. Additionally, the CVRWMG will coordinate reporting on project performance and assuring each project reports its progress toward identified performance measures. Projects that are included in the online project database but not grant-funded through the IRWM Program (including the SWGP) are encouraged to follow a similar monitoring and reporting program.

Based on information provided by project proponents, and in accordance with DWR requirements, the CVRWMG will prepare reports summarizing the progress of each individual project completed via IRWM grant funding and evaluate the projects to determine their progress towards achieving the performance metrics. Once a grant contract is awarded, project proponents will provide quarterly reports to the grant management agency who is authorized to submit and enter into contracts for grant funding on behalf of the Region for that specific funding round. These reports will describe project progress, performance with respect to stated performance metrics, and summarize project deliverables and invoices. These quarterly reports and required project completion reporting will be used to develop the CVRWMG's reports on the IRWM program.

SWRP projects will similarly be monitored by project proponents and reported on an ongoing basis to ensure projects are implemented to meet the IRWM/SWR Plan objectives. Performance monitoring results for SWR Plan projects will be reported by the individual agencies through different mechanisms included via agency websites, stakeholder workshops, and other public events. Projects funded under the SWGP will be required to report project performance. In accordance with SWRCB requirements, reporting will include preparing appropriate monitoring plans and quality assurance plans, as necessary, and ensuring that data is collected according to local and state requirements.

Project performance will be measured using the targets and measurements presented in **Table 6-1** in *Chapter 6 Objectives* and the stormwater benefits metrics provided in **Tables 9-6** and **9-7** in *Chapter 9 Project Evaluation and Prioritization* These metrics are appropriate for measuring project performance because IRWM/SWR projects are one of the key mechanisms through which the IRWM/SWR Plan is implemented. These performance measures are intended to serve as measurable benchmarks for

establishing success of projects following implementation. As projects become further developed, these metrics may evolve to better capture the performance of projects with respect to meeting project objectives.

SWRP projects submitted to the IRWM/SWR Plan without quantified benefits at a conceptual stage should be able to provide quantified benefits prior to receiving funding for project implementation through the SWGP or IRWM Grant Program. Projects that proceed without grant funds or the associated required performance monitoring and reporting will still have project information updated as part of the IRWM/SWR Plan Updates, at which time benefit quantifications will be reassessed.

Evaluating Plan Performance

The CVRWMG is the Responsible Agency in charge of evaluating the performance of the IRMW/SWR Plan in regard to achieving goals and objectives. **Table 6-2** in *Chapter 6 Objectives* presents the designated IRWM/SWR Plan goals, objectives, and targets established for measuring progress in achieving the objectives, and parameters for measuring their success. Overall IRWM/SWR Plan performance will be measured through the contributions of projects to these objectives and goals, as described above in *Evaluating Project Performance*. If deemed necessary, the CVRWMG may further develop the thresholds of success for the parameters shown in **Table 6-2** as part of an adaptive management process. As climate science continues to evolve, more information becomes available, and new tools are developed, the IRWM/SWR Plan may be adjusted to address updated climate change impact projections.

11.4.2 Project-Specific Monitoring Plans

Project proponents are responsible for implementing project-specific monitoring plans to ensure projects are on track to meeting the individual IRWM/SWR Plan targets. All projects shall be monitored to comply with applicable regulations, laws, and permit requirements such as statutory requirements of the CEQA, which mandates an assessment of project-level impacts. Project monitoring for IRWM grants must be consistent with requirements established by DWR, which, to date have required submittal of relevant data (water quality testing, outreach information, etc.) to DWR for review and approval. Project monitoring for other grant programs, such as the SWGP, will be consistent with requirements established by the associated regulatory agency.

Table 11-3 contains a list of required contents for a project-specific monitoring plan. As projects become further developed, monitoring strategies may evolve to better address any problems encountered during monitoring. All project proponents that receive IRWM grant funding will generate project progress reports to be submitted to the Lead Agency with quarterly invoices. Project proponents will be required to submit monitoring plans before grant funding reimbursements may begin.

Table 11-3: Required Contents of Project-Specific Monitoring Plans

Required Contents of Project-Specific Monitoring Plans
Clearly and concisely (in a table format) describe what is being monitored for each project
Measures to remedy or react to problems encountered during monitoring
Location of monitoring
Monitoring frequency
Monitoring protocols/methodologies, including who will perform the monitoring
DMS or procedures to keep track of what is monitored, including how the data collected will be or can be incorporated into Statewide databases
Procedures to ensure the monitoring schedule is maintained and that adequate resources (budget) are available to maintain monitoring of the project throughout the scheduled monitoring timeframe

11.5 Finance

IRWM Standards: *This section complies with the* ***Finance Standard*** *and ensures that financing of the IRWM Plan has been considered at a programmatic level by the CVRWMG. The potential funding sources for projects and programs that implement the IRWM Plan are also considered, along with their certainty.*

SWRP Requirements: *This section describes the resources for Plan implementation including funding needs, potential sources for stormwater funding, and financing schedule.*

Development of the Coachella Valley IRWM/SWR Plan included both programmatic and project-level assessment of financing by the CVRWMG. Programmatic financing was considered by the CVRWMG during development of their Memorandum of Understanding (MOU) (see **Appendix VI-C**) and also during formalization of the current governance structure. Project-level financing is presented and accessible to stakeholders, Planning Partners, Issues Groups, and the general public through the online project database used to collect and manage projects submitted as part of this Plan. The project database requires submittal of information regarding current and expected financing of projects.

11.5.1 Sources and Certainty of Funding

The following section discusses financing in the context of multiple potential funding sources, and therefore explains how project proponents will attempt to achieve desired funding for their projects through this IRWM/SWR planning process and through other sources.

IRWM Plan and Program Funding

The five water purveyors and one wastewater agency that constitute the CVRWMG contributed funding necessary to prepare this IRWM/SWR Plan and provided the funding necessary to prepare and secure the Proposition 1-Planning Grant obtained to fund development of this IRWM/SWR Plan. In addition, each member agency allocated staff time and resources to developing the IRWM/SWR Plan, and to participate in stakeholder outreach efforts. The CVRWMG is committed to the long-term continuance of the Coachella Valley IRWM Program as a regional water supply planning effort, as evidenced by their ongoing MOU (see **Appendix VI-C**).

Beyond paying for development of the IRWM/SWR Plan itself, the CVRWMG agencies are committed to ensuring that the IRWM/SWR Plan is properly implemented. To the extent required by the terms of acquired funding, the CVRWMG will also oversee the implementation of projects funded through the IRWM Program. The CVRWMG will also continue to coordinate their efforts when reasonable, such as benefitting from economies of scale, when working on regional efforts, and when tracking and commenting on regulatory matters of regional importance. These activities would continue under the current CVRWMG MOU structure. Although the CVRWMG does not oversee implementation of the projects funded through the SWGP, the CVRWMG will continue to provide information on the SWGP to stakeholders and encourage implementation of stormwater projects.

To date the CVRWMG has completed substantial efforts to develop and implement projects to address DAC issues. Several projects that would directly benefit DACs have been included in the regional IRWM grant applications and have successfully received IRWM grant funding. Further, the DAC Outreach Program involved substantial efforts to move DAC projects forward from the conceptual phase and complete initial planning and design work that would increase their eligibility for future IRWM grant funding. These projects are described in *Chapter 4 Disadvantaged Communities,* and detailed work plan, budgets, and schedules for these projects are included within the DAC Outreach Program (Volume II) of this IRWM/SWR Plan.

The CVRWMG, in coordination with the Mojave, Imperial, and San Gorgonio IRWM Regions submitted a grant application for the Proposition 1 DACI grant program in October 2016. Three Coachella Valley DAC planning projects were funded under this grant program, as well as a CRFA DAC Needs Assessment. This grant funding will allow these projects to be ready for implementation for the Proposition 1 Implementation Round 2 grant solicitation.

Project Funding

As described in *Chapter 9 Project Evaluation and Prioritization*, potential sources of funding for projects and programs that implement the IRWM/SWR Plan were derived from project proponents as part of the project submittal process as project funding sources are required during online project submittal. Project proponents were required to submit the entire project budget, the amount of funds requested as part of the IRWM process, the estimated local match, and the annual operations and maintenance costs of their project or program. Operation and maintenance costs for projects and programs shall be covered by the project proponents' operating budgets. Operating budgets are generally secured by proponents through their rate structures, as defined by asset management planning.

Chapter 9 Project Evaluation and Prioritization provides information regarding the readiness for projects to proceed with regards to IRWM grants and SWGP grants (Proposition 1). While not all funding has been fully secured for projects submitted as part of this IRWM/SWR Plan, the CVRWMG considers whether or not projects had been identified within an existing planning document as part of the scoring and ranking process. With this criterion, the CVRWMG recognizes that accepting a project or program into a formalized planning document is one of the first steps to securing funding.

Table 11-4 below outlines potential funding mechanisms that could be utilized by the CVRWMG and various project proponents to secure funds for on-going project implementation, based on project type. Because the IRWM/SWR project list is a living list, which will change over time, the potential funding sources in **Table 11-4** are presented generally.

Funding Sources

The funding sources identified by the IRWM Program and listed in **Table 11-4** are described in further detail in the following sections. Funding opportunities have been categorized as local, state, or federal, which may impact the types of projects that are eligible, the terms of the funding, availability of funding, or who may apply. This section also describes the certainty of these funding opportunities; information about whether or not the funding can be used for operations and maintenance is presented in **Table 11-4**. Please note that in general, state and federal sources of funding are considered uncertain. Given that there is no local control over these funding sources, the IRWM Program cannot guarantee the certainty or longevity of these funding sources.

Table 11-4: IRWM Project Potential Funding Mechanisms

	Potential Funding Source	Project Type									Operations & Maintenance	Certainty / Longevity
		Groundwater	Potable Water Supply	Conservation	Wastewater	Non-Potable Water	Urban Runoff Management	Flood Management	Ecosystem Restoration and Protection	Water-Based Recreation		
Local	Capital Improvement Programs	●	●	●	●	●	●	●	●	●		+
	Special Property Assessments	●	●		●	●	●	●			○	+
	Water User Rates	●	●	○	●	○					○	+
	NGO Funding or Endowments	○	○	○	○	○	○	○	○	○	○	+
	Private Grants	○	○	○	○	○	○	○	○	○	○	+
State	Proposition 50 IRWM	●	●	●	●	●	●	●	●	●		U
	Proposition 84 IRWM	●	●	●	●	●	●	●	●	●		U
	Proposition 1 IRWM	●	●	●	●	●	●	●	●	●		U
	Proposition 1E						●	●				U
	Storm Water Grant Program	○	○	○		○	●	●	○	○		U
	Flood Protection Corridor Program (FPCP)							●	●			U
	Urban Streams Restoration Program			●			●	●	●	○		U
	Local Groundwater Assistance (LGA) Program	●	○									U
	State Revolving Fund Program	●	●	○	●	●	●	●	●	●	●	+
	Water Recycling Funding Program				○	●					●	U
	Nonpoint Source Grant Program	○	○				●		●			U
	Groundwater Management Program Assessments	●	○	○		○						U
	Supplemental Environmental Project	○	○	○	○	○	○	○	○	○		U
Federal	Water Recycling Grants				○	●						U
	Title XVI Water Reclamation and Reuse Program				○	●						U
	WaterSMART	●	●	●	○	●	●		●			U
	Cooperative Watershed Management Program (CWMP)						●		●			U
	Water and Waste Revolving Fund Grant	●	●		●	●			○			U
	Water and Environmental Programs funds	●	●	●	●	○	○					U

● Indicates project *likely* eligible for funding through this source
○ Indicates project *may* be eligible for funding through this source
\+ Indicates relative certainty and longevity of funding based on current knowledge of the funding program
U Indicates high uncertainty regarding longevity of funding based on current knowledge of the funding program

Local

Local funding opportunities may take various forms, but aside from grants or endowments, are likely to incur costs that are passed along to ratepayers. Local funding sources may be less competitive than state or federal, but are also likely to be smaller. For local funding sources requiring ratepayer fees, certainty is dependent on the willingness of local residents to pay or approve such increases. Stormwater is typically difficult to fund through fees because it is not exempt under Proposition 218 and therefore requires taxpayer approval of property related assessments and fees before implementing such a funding strategy. The certainty and longevity of local sources may be highly variable, and dependent on local conditions such as political, economic, and social values and concerns. Non-governmental Organization (NGO) endowments and private grant funding are contingent on the success of individual grant applications. These local sources are further discussed below.

- Capital Improvement Programs (CIP) – CIP budgets are prepared and adopted by implementing agencies and include the majority of large infrastructure projects. Large CIP projects are often funded through bonds or that are repaid through rates and charges passed along to customers, or through agency shares of property taxes or assessments. Smaller CIP projects may be funded through existing agency funds, short-term debt, or through user rates. CIP projects may also be eligible for outside funding.
- Special Property Assessments – Special property assessments can provide funds for projects and operations and maintenance but are subject to Proposition 218 requirements.
- Water User Raters – Water user rates can be used to fund projects that directly serve the water users in a manner distinctly related to the water services they receive. Such projects likely include water supply, water quality, and wastewater projects, or projects that would contribute to reducing future water rate increases. Water user rates are subject to Proposition 218 requirements
- NGO Funding or Endowments – NGOs may fund projects with money provided through endowments, contributions, fundraisers, memberships, and other sources.
- Private Grants – Private grants often fund environmental projects using funds from foundations or businesses.

State

State funding sources have been an important motivation for the Region's IRWM Program and IRWM/SWR Plan development. These funding sources may provide larger funding amounts than local opportunities, though they may also be more competitive. The Region has experienced delays with the funding process with state-administered funds, and future state funding may be uncertain due to budget constraints and decisions made by the State Assembly. Projects funded through state grants or loans may also be subject to additional regulations. Grant funding is contingent on the success of individual grant applications.

Proposition 50 – Three programs administered through Proposition 50 provided sources of funding for Coachella Valley IRWM Projects. Proposition 50 funding has been expended and is no longer available.

- IRWM Grant Program: funded IRWM projects
- Water use Efficiency Program: funded agricultural water use efficiency projects
- Chapter 6(b) and (c): funded improvements to public water systems, including new technologies to clean drinking water and improvements to systems with water quality violations

Proposition 84 – Five programs through Proposition 84 provided sources of funding for Coachella Valley IRWM Projects.

- IRWM Grant Program: one of the key funding sources for the Coachella Valley IRWM Program and Projects to-date. The Region received over $18.3 million in funding for IRWM planning and implementation projects from Proposition 84. Proposition 84 has been expended and funding is no longer available. Proposition 84 IRWM Grant Program funds were expended after the fourth (and final) round of funding.
- SWGP: funded projects that reduce or prevent pollution of surface water from stormwater. Projects consistent with IRWM Plans are given preference and are encouraged.
- Safe Drinking Water Emergency Funding: funded emergency and urgent projects that provide drinking water quality solutions. Administered by California Department of Public Health (CDPH), these grants are limited to $250,000 per project, with a limit of $50,000 per project for those projects eligible under Part 1 Emergency (public water system serving a DAC which lacks capacity to delivery safe drinking water and has submitted a pre-application for funding and been listed on project priority list).
- Small Community Infrastructure Improvements for Chemical and Nitrate Contaminants: funded projects that address chemical and nitrate contaminants and other health hazards to communities on small community water systems, with priority given to DACs. Grants are limited to no more than $5 million per project and are administered by CDPH. Applicants may receive no more than a combined $15 million under this grant and the Prevention and Reduction of Groundwater Contamination grant described below.
- Prevention and Reduction of Groundwater Contamination: funded projects that protect groundwater from contamination where affected groundwater represents at least one-third of a community's supply of drinking water. Administered by CDPH, these grants may total no more than $10 million per applicant. Applicants may receive no more than a combined $15 million under this grant and the Small Community Infrastructure Improvements grant described above.

Proposition 1E – Stormwater Flood Management Grant Program – Funds flood protection and stormwater projects that reduce flood damage. To be eligible, a project must be included in an IRWM Plan. Funding under Proposition 1E has been expended and is no longer available.

Proposition 1 – Several programs provided through Proposition 1 could provide sources of funding for the Region.

- IRWM Grant Program: This program is a continuation of IRWM Program funding which has been a key funding source for Coachella Valley IRWM projects. The Region has been awarded funding through the Proposition 1 IRWM Grant Program's Planning Grant and DACI Grant. It is anticipated that there will be at least two implementation rounds before this program is expended. Round 1 is anticipated to occur in fall/winter 2018 and Round 2 in 2020.
- SWGP: This program funds multi-benefit storm water management projects which may include, but shall not be limited to: green infrastructure, rainwater and storm water capture projects and storm water treatment facilities.
- Groundwater Grant Program: This program sets aside Proposition 1 funds for the prevention and cleanup of contaminated groundwater that serves or used to serve as a drinking water source. This includes treatment and remediation activities that prevents or reduces groundwater contamination.

The most recent solicitation for eligible projects (Round 2) opened in April 2018, with grant awards announced in late 2018.

Flood Protection Corridor Program (FPCP) – This program is funded through Proposition 84 and Proposition 1E, and funds nonstructural flood control projects, such as land conservation, agricultural preservation, and habitat protection.

Urban Streams Restoration Program – This program funds projects that protect streams from flooding and erosion, restore natural values to streams, and promote community involvement.

Local Groundwater Assistance (LGA) Program – The LGA Program funds groundwater projects including studies, management, and monitoring.

State Revolving Fund Program – There are multiple State Revolving Funds (SRFs) in place that could prove to be a funding source for IRWM projects, including projects benefitting DACs. These SRFs are anticipated to remain available, contingent on success of individual funding applications:

- Infrastructure State Revolving Fund (ISRF): the ISRF program funds infrastructure projects including drainage, water supply and flood control, environmental mitigation measures, parks and recreational facilities, sewage collection and treatment, and water treatment and distribution.
- Safe Drinking Water State Revolving Fund (SDWSRF): SDWSRF funds construction projects that improve drinking water infrastructure to protect public health. It also provides set-aside funds for communities that lack an SDWSRF eligible governing entity and are not served domestic water from existing community systems. Set-aside funds are used to identify and form a governing body with the authority to plan and implement drinking water solution projects. Set-aside funds are limited to $250,000 per applicant.
- Clean Water State Revolving Fund (CWSRF): CWSRF funds wastewater, water recycling, and nonpoint source construction projects.

Water Recycling Funding Program – Water recycling construction projects are eligible for Water Recycling Funding Program funds, including treatment, distribution, and groundwater recharge projects. This program is administered concurrently with the CWSRF Program.

Nonpoint Source Grant Program – Nonpoint Source Grants are funded through the Clean Water Act Section 319(h). Projects eligible for these funds include those that address surface and groundwater quality impacted by nonpoint source pollution, and restore beneficial uses of these water bodies.

Groundwater Management Program Assessments – If a groundwater improvement project's project area is included in an established Groundwater Management Program (per AB 3030), it may be eligible for funds through the Groundwater Management Program Assessments, which are voter-approved levies against groundwater users.

Supplemental Environmental Project – Projects funded through settlement agreements for violations of environmental regulations that pose an environmental or public health threat. Projects must be included on the Regional Board's list of authorized SEPs, and have a nexus with the violation.

Future Water Bond – Although not currently available, it is possible that another water bond will be implemented to provide funds to continue IRWM efforts in California. Such funding would require a vote by the people of California; it is not known at this time what the future water bond would fund or the timeframe within which it would be implemented.

Federal

Federal funding opportunities are likely to be available for larger-scale projects, or projects that provide benefits beyond the local level. These opportunities may be subject to Congressional or budgetary constraints, in addition to the requirements of the loans or grants themselves. Grant funding is contingent on the success of individual grant applications, and may be highly competitive. Certainty of these grant opportunities being available in the future is unknown, and dependent on many factors beyond the Program's ability to predict.

Title XVI - Water Reclamation and Reuse Program – Title XVI funds are available for recycled water projects, as authorized by the U.S. Congress.

- Construction: funds capital costs for recycled water projects.
- Feasibility Study: funds feasibility studies for recycled water projects.

Title XVI – Water Recycling Projects Under the Water Infrastructure Improvements for the Nation (WIIN) Act Program – Title XVI WIIN funds are available for water recycling projects with a completed feasibility study that have been submitted to Congress for authorization, but have not yet been authorized.

WaterSMART – The WaterSMART program is administered by U.S. Bureau of Reclamation (USBR) and requires a 50% cost share from project partners. There are five types of WaterSMART grants available for which IRWM Projects are eligible.

- Water & Energy Efficiency Grants: projects must be sponsored by an agency or organization which delivers water or power, and projects must help sustainable water supplies in the western United States. Such projects may include water conservation and efficiency, renewable energy, endangered species protection, or facilitation of water markets. Projects must be completed within two years.
- System Optimization Review (SOR) Grants: SOR grants fund system-wide efficiency analyses resulting in actions to improve future water management. Implementation of these actions may be eligible for funding through other WaterSMART grants. A SOR must be completed within two years.
- Advanced Water Treatment and Pilot and Demonstration Project Grants: These grants fund pilot and demonstration projects addressing the viability of using groundwater, seawater, impaired waters, or otherwise creating new water sources in a local area using advanced treatment techniques.
- Grants to Develop Climate Analysis Tools: Universities, non-profits, and organizations with water or power delivery authority are eligible to apply for these grants. Projects must be designed to enhance water resources management and focus on information gaps identified in USBR and U.S. Army Corps of Engineers (USACE) Report "Addressing Climate Change in Long-Term Water Resources Planning and Management: User Needs for Improving Tools and Information." Projects should also support efforts implemented under the SECURE Water Act.
- Program for Basin Studies: Basin Studies are an effort implemented under the SECURE Water Act, and support basin-wide efforts to evaluate and address impacts of climate change.

Cooperative Watershed Management Program (CWMP) – The CWMP is administered by USBR, and funds projects that improve water quality and ecological resilience, and promote collaborative conservation

efforts in local watershed management. Grants will fund new watershed groups, expand existing watershed groups, and implement projects supportive of watershed group goals.

Water and Waste Revolving Fund Grants – Water and Waste Revolving Fund Grants are provided by USDA Rural Development to establish loan programs to support pre-development costs of water and wastewater projects or short-term capital improvement projects not part of regular operations and maintenance in rural communities with populations of 10,000 or less.

Water and Environmental Programs (WEP) – The USDA Rural Development's WEP provides a number of support services to rural communities with populations less than 10,000. Support includes loans, grants, and loan guarantees for projects addressing water and wastewater needs in these communities. Tribes are eligible for most WEP funding. Non-profits providing technical water and waste disposal assistance or training, or loans for private wells may also apply for grants.

Stormwater Project Funding

Stormwater projects have unique financing needs and issues due to often not having service rates as an ongoing funding source. Water managers typically look to grant programs, when available, to help fund stormwater management projects. Cost share for these stormwater projects, as well as funding for ongoing O&M of completed projects requires the identification and use of alternative sources of funding beyond grant programs. Most agencies use General Funds due to lack of any specific fee or tax to provide ongoing funding. In-kind services also provide some funding relief for the administrative and technical oversight of project implementation and grant application preparation. Some projects and programs can be integrated as part of a larger program and utilize combined financial resources between partners. Funding needs identified as part of the IRWM/SWR Plan project submittal are summarized in **Table 11-5**. Because some projects are still in a conceptual stage, cost estimates for both implementation and long-term O&M were not available for all projects and will continue to be developed as the projects advance. Of the 18 SWR projects submitted to the IRWM/SWR Plan, only seven provided cost estimates. With those seven projects alone, implementation of the SWRP component of the IRWM/SWR Plan will cost over $135 million. O&M costs were not provided by the SWRP projects at the time of plan developments; as such they were not included in this cost analysis.

Schedules for financing projects are determined by the individual project proponents. Upon completion of the SWRP, projects included in the IRWM/SWR Plan will be eligible for funding through the SWGP and IRWM Grant Program. Project implementation and ongoing operations and maintenance of projects will require both initial capital investment and continuous funding sources. Timelines for project financing and development will be dependent on individual agency funding budgets and grant application schedules being pursued by the agencies.

Table 11-5: SWRP Project Funding Needs

	Project Name	Projected Implementation Cost
1	Thousand Palms Flood Control Project	$80,064,000
2	North Cathedral City Stormwater Master Plan	$49,609,000
3	East Side Dike Improvement Project - Phase I	$3,529,000
4	Trash Capture Systems	TBD
5	Maxwell Installation	TBD
6	Whitewater Channel Extension to Connect with Current Salton Sea Water Level	$205,235
7	St. Anthony Storm Water Capture Project	$1,985,000
8	Coachella Monitoring Well Application and Project Study	$255,209
9	Improvements for Existing Dry Well Located South of 52 Ave.	$35,000
10	Stormwater Conveyance System 1	TBD
11	Revitalize 20 Existing Dry Wells	TBD
12	Stormwater Conveyance System 2	TBD
13	Jackson and Avenue 50 Retention Pond with Maxwells	TBD
14	Stormwater Conveyance System 3	TBD
15	Pierce Community Stormwater Project	TBD
16	Avenue 76 Community Storm Water Control Project	TBD
17	Avenue 48 Storm Drain	TBD
18	Stormwater Master Plan	TBD
Total SWR Plan Implementation Cost		**$135,809,444**

The anticipated schedule for Plan adoption, grant funding opportunities, and project implementation is shown in **Table 11-6**.

Table 11-6: IRWM/SWR Plan Adoption and Implementation Schedule

Milestone	Schedule
IRWM/SWR Plan Adoption	Early 2019
Proposition 1 IRWM Implementation Round 1	Late 2018
Proposition 1 SWGP Round 2	Early 2019
Proposition 1 IRWM Implementation Round 2	2020
Project Implementation	TBD[1]

1. The timeline for project implementation will depend on when each project sponsor secures funding.

11.6 SWRP Implementation

This section describes implementation of the SWRP and SWR projects.

The stormwater projects and programs identified in the IRWM/SWR Plan were prioritized using a quantitative metric-based analysis to ensure that multi-benefit projects were identified that could help the Region address its stormwater priorities, as described in *Chapter 9 Project Evaluation and Prioritization*. The SWRP will be implemented through these projects and the actions of the individual project proponents.

Project implementation requires coordination between project proponents, project partners, regulatory agencies, funding entities, and community stakeholders. The project proponents involved in implementation of the IRWM/SWR Plan are identified in **Appendix V1-H**. Project implementation also requires permitting and funding from local, state, and federal agencies, as described in *Chapter 10 Agency Coordination*. Concerning permitting and CEQA, each project's lead agency is responsible for identifying and attaining all necessary permits for their respective project. This could include coordination with the SWRCB, CDFW, USACE, and other appropriate permitting agencies. Finally, community involvement and participation are important components to successful project implementation. The IRWM/SWR strategy for community and stakeholder participation is described in *Chapter 7 Stakeholder Involvement*.

Many projects in the IRWM/SWR Plan did not provide a project timeline as part of the SWR project submittal, making it difficult to estimate a schedule for project implementation. Many of the projects are either conceptual or on hold, awaiting funding to support implementation. When funding is identified, the SWRP projects will be able to establish timelines for implementation. The general timeline for project components is illustrated in **Figure 11-2**.

Figure 11-2: Project Timeline

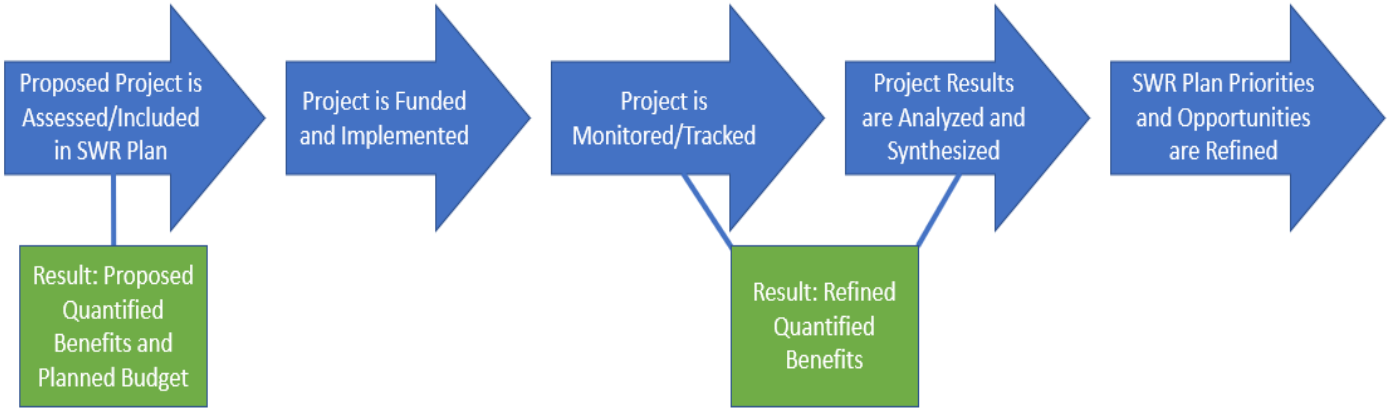
As part of project implementation, projects will need to acquire the necessary local, state, and federal permits as well as the appropriate environmental documentation prior to construction. Each lead agency is responsible for identifying and attaining all necessary permits for their respective project. It is anticipated that permits will be attained during project development and design which will occur at different points over the SWRP implementation.

Project development and implementation will be tracked through the project submittal database, where project proponents can submit project concepts, studies, design efforts and other items related to their projects. Progression of projects and project status will be evaluated through the submittal database and used to update project prioritization. As projects progress through design and implementation, the project submittal database will act as a tool to update project costs, schedule, and benefits quantifications. This

updated information will be used to improve benefits analyses and SWRP implementation cost estimates in future updates of the IRWM/SWR Plan.

In addition, as projects included in the SWRP are funded and implemented, project information will be tracked through the project submittal database to fill data gaps and better refine SWRP priorities. The feasibility and benefits of project types will be evaluated based on data such as pre- and post- construction project monitoring required by funding agencies, actual project costs, lessons learned, and other information provided through project implementation. This data will be incorporated into the IRWM/SWR Plan and benefit analyses through future IRWM/SWR Plan updates. **Figure 11-3** illustrates the SWRP implementation process and data refinement approach.

Figure 11-3: SWRP Implementation and Data Refinement Timeline



11.6.1 Procedure for Updating the SWRP

As described in *Section 7.8 Long-term Implementation of IRWM/SWR Plan,* the SWRP will be updated by the CVRWMG as part of the IRWM Plan updates, or on an as needed basis. The SWRP is intended to be a living document, with the SWRP project list easily accessible to stakeholders and the CVRWMG to add new projects easily through the project database.

New Total Maximum Daily Loads (TMDLs) will be developed in the planning area which will influence revisions of the SWRP water quality priorities. As outlined in *Section 2.5 Water Quality,* sources for the pollutants will be identified during TMDL development and addressed through projects selected and prioritized for the SWRP. During IRWM/SWR Plan updates, the SWRP projects quantitative benefits analysis and projects prioritization will be modified to reflect the new and completed projects and programs being included in the Plan. As the IRWM/SWR Plan is a living document, projects will be continually accepted into the SWRP and included in the online project database.

The Coachella Valley IRWM governing structure will continue to be used as a tool for the SWRP to integrate new permittees and SWR project proponents into the stakeholder group. IRWM/SWR stakeholder meetings and outreach vehicles will be used to notify SWR stakeholders of new funding opportunities,

benefits quantification tools developments, compliance requirements, and other topics important to the SWRP implementation.

Page intentionally left blank.

12 References

Introduction

Department of Water Resources (DWR). 2009. *California Water Plan Update 2009 Volume 3 Regional Reports: Colorado River Integrated Water Management, Bulletin 160-09.* Available: http://www.waterplan.water.ca.gov/docs/cwpu2009/0310final/v3_coloradoriver_cwp2009.pdf

Department of Water Resources (DWR). 2012. *Integrated Regional Water Management Proposition 84 and 1E Guidelines*. November.

Department of Water Resources (DWR). 2016. *2016 Integrated Regional Water Management Grant Program Guidelines.* Available: http://abcrs.resources.ca.gov/guidelines/guideline_624.pdf

State Water Resources Control Board (SWRCB). 2015. *Storm Water Resource Plan Guidelines*. Available at: https://www.waterboards.ca.gov/water_issues/programs/grants_loans/swgp/docs/draft_guidelines_120315.pdf

Region Description

Branin, Joan. 2006. *Coachella Valley Health Assessment.* Available: http://www.regionalaccessproject.org/documents/CV%20Health%20Collaborative%20Needs%20Assessment.pdf (Accessed: July 9, 2010).

California Agricultural Water Stewardship Initiative. 2010. *Use of Municipal Recycled Water Available:* http://agwaterstewards.org/txp/Resource-Center-Articles/24/use-of-municipal-recycled-water (Accessed: August 16, 2010).

California Department of Conservation. 2010. *Coachella Valley Area Time Series: Farmland Mapping and Monitoring Program 1984 to 2008 Time Series.* Available: http://www.conservation.ca.gov/dlrp/fmmp/trends/TimeSeriesImg/Pages/Coachella.aspx. (Accessed July 18, 2010).

California Natural Resources Agency (CNRA). 2009. *2009 California Climate Adaptation Strategy*. Available: http://resources.ca.gov/climate_adaptation/docs/Statewide_Adaptation_Strategy.pdf

California State Web Portal. 2011. *Colorado River Basin Water Quality Control Board – Draft Agenda Item w/ Resolution.* Available: https://www.waterboards.ca.gov/water_issues/programs/tmdl/docs/coachella/bp_amndmnt/agnd_item.pdf

City of Coachella (CWA). 2009. *General Plan Environmental Impact Report.* December. Available: http://www.coachella.org/DocumentView .aspx?DID=169 (Accessed: July 8, 2010).

City of Coachella (CWA). 2011. *2010 Urban Water Management Plan*. July.

City of Coachella (CWA). 2016. *2015 Urban Water Management Plan*. July. Available: http://www.coachella.org/documentcenter/view/1902

City of Palm Springs. 2013. *Wastewater Treatment Plant Improvements and Rate Study.* Available: http://www.palmsprings-ca.gov/index.aspx?page=877 (Accessed: April 22, 2013).

Coachella Valley Association of Governments (CVAG). 2016. *Coachella Valley Multiple Species Habitat Conservation Plan (CVMSHCP)*. Available: http://www.cvmshcp.org/

Coachella Valley Economic Partnership (CVEP). 2012. *2012 Annual Economic Report.* Available at: http://cvepsummit.com/2012/cvep_2012report.pdf

Coachella Valley Economic Partnership (CVEP). 2013. *Quality of Life and Place*. Available at: http://cvep.com/quality_of_life.htm (Accessed November 1, 2013).

Coachella Valley Economic Partnership (CVEP). 2017. *Crafting Our Future*. Available at: http://cvep.wpengine.com/wp-content/uploads/2018/04/CVEP_2017_EconomicReport.pdf (Accessed June 15, 2018).

Coachella Valley Water District, Desert Water Agency, Mission Springs Water District (CVWD et al.). 2013. *Mission Creek and Garnet Hill Subbasins Water Management Plan*. January.

Coachella Valley Water District (CVWD). 2002. *Coachella Valley Final Water Management Plan*. September. Available: http://www.cvwd.org/news/publicinfo/Coachella_Valley_Final_WMP.pdf

Coachella Valley Water District (CVWD). 2005. *Urban Water Management Plan*. December. Available: http://www.cvwd.org/news/publicinfo/2005_12_29_CVMWD_UWMP.pdf

Coachella Valley Water District (CVWD). 2009. *Annual Review Water Quality Report.* Available: http://www.cvwd.org/news/publicinfo/2009_annual_review_water_quality_report.pdf.

Coachella Valley Water District (CVWD). 2011. *2010 Urban Water Management Plan*. July.

Coachella Valley Water District (CVWD). 2012. *Coachella Valley Water Management Plan Update*. Available: http://www.cvwd.org/DocumentCenter/Home/View/1321

Coachella Valley Water District (CVWD). 2012a. *Non-potable Water Operations Annual Report*.

Coachella Valley Water District (CVWD). 2012b. *2012 Domestic Water Quality Report*. Available: http://www.cvwd.org/news/publicinfo/2012_06_25_2012WaterQuality Report.pdf (Accessed April 30, 2012).

Coachella Valley Water District (CVWD). 2013a. *Engineer's Report on Water Supply and Replenishment Assessment, Lower Whitewater River Subbasin Area of Benefit 2013-2014*. April.

Coachella Valley Water District (CVWD). 2013d. *North Cathedral City and Thousand Palms Stormwater Management Plan: Thousand Palms and Morongo Wash Watersheds Alternatives Analysis Report*. Prepared by northwest hydraulic consultants. September.

Coachella Valley Water District (CVWD). 2016a. *2015 Urban Water Management Plan*. July.

Coachella Valley Water District (CVWD). 2016b. *Coachella Valley Water District's Domestic Water Rates.* Available: http://www.cvwd.org/DocumentCenter/View/897

Coachella Valley Water District (CVWD). 2017. *Engineer's Report on Water Supply and Replenishment Assessment, 2016-2017*. April.

Coachella Valley Water District (CVWD). 2017a. *Domestic Water Quality Summary.* January. Available at: http://www.cvwd.org/ArchiveCenter/ViewFile/Item/687

Coachella Valley Water District (CVWD). 2017b. *Coachella Valley Water Management Plan 2016 Status Report. February. Available at: http://www.cvwd.org/DocumentCenter/View/4045/2016-Coachella-Valley-Water-Management-Plan-Status-Report*

Coachella Valley Water District (CVWD). 2018. *Coachella Valley Water District's Domestic Water Rates.* Available at: http://www.cvwd.org/DocumentCenter/View/897/Domestic-Water-Rates-PDF?bidId=

CVRWMG. 2010. *Coachella Valley Integrated Regional Water Management Plan*. December. Available: http://www.cvrwmg.org/docs/2011_11_30_CVRWMG-CVRWMG-CoachellaValleyIntegratedRegionalWaterManagementPlan_150258.pdf

CVRWMG. 2009. *Region Acceptance Process: Description of Coachella Valley Water Management Region*. April. Available: http://www.cvrwmg.org/docs/2009_04_30_CVRWMG-RegionalAcceptanceProgramApplication_150643.pdf

Department of Water Resources (DWR). 2003. *Bulletin 118 – Update 2003, California's Groundwater*. Available: http://www.water.ca.gov/pubs/groundwater/bulletin_118/california's_groundwater__bulletin_118_-_update_2003_/bulletin118_entire.pdf

Department of Water Resources (DWR). 2008. *Managing an Uncertain Future: Climate Change Adaptation Strategies for California's Water*. October 2008. Available: http://www.water.ca.gov/climatechange/docs/ClimateChangeWhitePaper.pdf

Department of Water Resources (DWR). 2015. *California Climate Science and Data.* June. Available: https://water.ca.gov/LegacyFiles/climatechange/docs/CA_Climate_Science_and_Data_Final_Release_June_2015.pdf

Desert Water Agency (DWA). 2016. *2015 Urban Water Management Plan*. March.

Desert Water Agency (DWA). 2018. *Monthly Water Service Charge*. Available at: https://dwa.org/customer-service/rates-billing/current-rates

Indio Water Authority (IWA). 2012. *Water Master Plan Update*.

Indio Water Authority (IWA). 2016. *2015 Urban Water Management Plan*. May.

Indio Water Authority (IWA). 2018. *Residential Rates and Service Fees*. Available at: http://www.indio.org/documents/IWA/Residential%20Rates%20&%20Fees%20-%202018.pdf

Mission Springs Water District (MSWD). 2016. *2015 Urban Water Management Plan*. June.

Mission Springs Water District (MSWD). 2018. *Fixed Monthly Charge Based on Meter Size*. Available at: https://www.mswd.org/rates.aspx

Public Policy Institute of California (PPIC). 2013. *Inland Empire Demographics 2000 and 2015 – Interactive*. Available at: http://www.ppic.org/main/mapdetail.asp?i=824 (Accessed: April 25, 2013).

Regional Water Quality Control Board, Colorado River Basin Region (Regional Board). 2006. *Water Quality Control Plan Colorado River Basin – Region 7 (Basin Plan)*. Available: http://www.waterboards.ca.gov/rwqcb7/publications_forms/publications/docs/basinplan_2006.pdf

Regional Water Quality Control Board, Colorado River Basin Region (Regional Board). 2007. *Total Maximum Daily Load and Implementation Plan for Bacterial Indicators Coachella Valley Stormwater Channel – Riverside County, California*. Available: http://www.waterboards.ca.gov/coloradoriver/water_issues/programs/tmdl/docs/coachella/sr_070516.pdf

Regional Water Quality Control Board, Colorado River Basin Region (Regional Board). 2013. *Waste Discharge Requirement for Separate Storm Sewer System (MS4) within the Whitewater River Watershed Riverside County Flood Control and Water Conservation District, Owner/Operator , County of Riverside, Owner/Operator, Coachella Valley Water District, Owner/Operator, and Incorporated Cities of Riverside County within the Whitewater River Basin, Owners/Operators (Order No. R7-2013-0011 [NPDES No. CAS617002])*. June.

Riverside County Flood Control District et al. 2012. *Report of Waste Discharge.* Available: http://rcflood.org/downloads/NPDES/Documents/WW_ROWD/Final_2012ROWD_11_20_12_noApp.pdf

Riverside County Flood Control and Water Conservation District County of Riverside (RCFCWCD). 2017. *Whitewater River Region Monitoring Annual Report 2015-2016.* Available: http://rcflood.org/downloads/NPDES/Documents/WW_Annual/2015-2016WWRMonitoringRpt.pdf

Salton Community Services District (SCSD). 2010. *Sewer System Management Plan (SSMP)*.

State Water Resources Control Board (SWRCB). 2010. *Final California 2010 Integrated Report (303(d) List/305(b) Report)*. Available: http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml

United States Army Corps of Engineers. 2000. *Whitewater River Basin: Draft, Feasibility Report and Environmental Impact Statement*.

United States Census Bureau. 2016. *2016 Census data*. Available: https://www.census.gov/programs-surveys/acs/news/data-releases/2016/release.html#par_textimage_11

United States Global Change Research Program. 2010. *Our Changing Planet*. Available: http://downloads.globalchange.gov/ocp/ocp2010/ocp2010.pdf

Valley Sanitary District. 2017. *Valley Sanitary District News.* Available: http://www.valley-sanitary.org/Portals/0/Newsletters/VSD%202017%20Newsletter.pdf

Issues and Needs

California Code of Regulations (CCR). 2016. *California Regulations Related to Drinking Water.* Available: https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/lawbook/dwregulations-2016-09-23.pdf

California Emergency Management Agency and California Natural Resources Agency. 2012. *Climate Change Adaptation Policy Guide*. Available: http://resources.ca.gov/climate_adaptation/local_government/adaptation_planning_guide.html

City of Coachella. 2012. *Coachella General Plan Draft Environmental Impact Report: Hydrology and Water Quality*. February. Available: http://cityofcoachellageneralplanupdate.weebly.com/uploads/1/2/1/2/12129446/5.9_-_hydro_and_water_quality.doc

City of Coachella (CWA). 2016. *2015 Urban Water Management Plan*. July. Available: http://www.coachella.org/documentcenter/view/1902

Coachella Valley Association of Governments (CVAG). 2007. *Final Recirculated Coachella Valley MSHCP*. September.

Coachella Valley Water District (CVWD). 2002. *Coachella Valley Water Management Plan*. September. Available: http://www.cvwd.org/news/publicinfo/Coachella_Valley_Final_WMP.pdf

Coachella Valley Water District (CVWD). 2005. *Urban Water Management Plan*. December. Available: http://www.cvwd.org/news/publicinfo/2005_12_29_CVMWD_UWMP.pdf

Coachella Valley Water District (CVWD). 2011. *2010 Urban Water Management Plan*. July.

Coachella Valley Water District (CVWD). 2012. *Coachella Valley Water Management Plan Update*. Available: http://www.cvwd.org/news/publicinfo/2010_12_02_CVWMP_Update_Draft.pdf

Coachella Valley Water District (CVWD), Desert Water Agency (DWA), and Mission Springs Water District (MSWD) (CVWD et al.). 2013. *Mission Creek and Garnet Hill Subbasins Water Management Plan*. January.

Coachella Valley Water District (CVWD). 2013a. *Engineer's Report on Water Supply and Replenishment Assessment, Lower Whitewater River Subbasin Area of Benefit 2013-2014*. April.

Coachella Valley Water District (CVWD). 2013b. *Engineer's Report on Water Supply and Replenishment Assessment, Mission Creek Subbasin Area of Benefit 2013-2014*. April.

Coachella Valley Water District (CVWD). 2013d. *North Cathedral City and Thousand Palms Stormwater Management Plan: Thousand Palms and Morongo Wash Watersheds Alternatives Analysis Report*. Prepared by northwest hydraulic consultants. September.

Coachella Valley Water District (CVWD). 2016a. *2015 Urban Water Management Plan*. July

CVRWMG. 2010. *Coachella Valley Tribes Meeting*. May 20. Notes available: http://www.cvrwmg.org/docs/2010_05_20_CVRWMG-May20TribalMeeting_121034.pdf

Desert Water Agency (DWA). 2009a. *Minutes of the Regular Meeting of the Desert Water Agency Board of Directors*. December 1.

Desert Water Agency (DWA). 2009b. *Minutes of the Regular Meeting of the Desert Water Agency Board of Directors*. December 15.

Desert Water Agency (DWA). 2016. *2015 Urban Water Management Plan*. March.

Department of Water Resources (DWR). 2011. *Climate Change Annual Report*. Available at: https://water.ca.gov/LegacyFiles/climatechange/docs/CCAnnualReport2011-Final.pdf

Hoerling, M., D. Lettenmaier, D. Cayan, and B. Udall (Hoerling et al.). 2009. *Reconciling Projections of Colorado River Streamflow*. Southwest Hydrology. May/June. Available: http://www.swhydro.arizona.edu/archive/V8_N3/feature2.pdf

Indio Water Authority (IWA). 2008. *Integrated Water Resources Development Plan, Phase 1 White Paper*. February.

Indio Water Authority (IWA). 2016. *2015 Urban Water Management Plan*. May.

Lenihan, JM, D Bachelet, RP Neilson, R Drapek (Lenihan et al.). 2008. *Response of Vegetation Distribution, Ecosystem Productivity, and Fire to Climate Change Scenarios for California*. Climate Change. 87 (Suppl 1): S215-S230. Available: ftp://naturalsciences.sdsu.edu/pub/IEMM/CSS/Other%20papers/lenihanEtAl2007.pdf

Mission Springs Water District (MSWD). 2011. *2010 Urban Water Management Plan*. June.

Mission Springs Water District (MSWD). 2016. *2015 Urban Water Management Plan*. June.

Public Policy Institute of California (PPIC). 2008. *Preparing California for a Changing Climate*. November. Available: http://www.ppic.org/content/pubs/report/R_1108LBR.pdf

Regional Water Quality Control Board, Colorado River Basin Region (Regional Board). 2004. *Watershed Management Initiative*. Updated October.

Regional Water Quality Control Board, Colorado River Basin Region (Regional Board). 2006. *Water Quality Control Plan Colorado River Basin – Region 7 (Basin Plan)*. Available: http://www.waterboards.ca.gov/rwqcb7/publications_forms/publications/docs/basinplan_2006.pdf

Regional Water Quality Control Board, Colorado River Basin Region (Regional Board). 2013. *Waste Discharge Requirement for Separate Storm Sewer System (MS4) within the Whitewater River Watershed Riverside County Flood Control and Water Conservation District, Owner/Operator, County of Riverside, Owner/Operator, Coachella Valley Water District, Owner/Operator, and Incorporated Cities of Riverside County within the Whitewater River Basin, Owners/Operators (Order No. R7-2013-0011 [NPDES No. CAS617002])*. June.

State Water Resources Control Board (SWRCB). 2010. *Final California 2010 Integrated Report (303(d) List/305(b) Report)*. Available: http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml

United States Geological Survey (USGS). 2007. D*etection and Measurement of Land Subsidence Using Global Positioning System Surveying and Interferometric Synthetic Aperture Radar, Coachella Valley, California, 1996–2005.* Scientific Investigations Report 2007–5251.

Disadvantaged Communities

Environmental Systems Research Institute (ESRI). 2012. Tapestry Segmentation Database.

Tribal Water Resources

Documents/Reports

Coachella Valley Water District (CVWD). 2002. *Coachella Valley Final Water Management Plan*. September. Available: http://www.cvwd.org/news/publicinfo/Coachella_Valley_Final_WMP.pdf

Coachella Valley Water District (CVWD). 2012. *Coachella Valley Water Management Plan Update*. Available: http://www.cvwd.org/news/publicinfo/2010_12_02_CVWMP_Update_Draft.pdf

CVRWMG. 2012. *Cabazon Tribal Characterization Form*. Provided by Cabazon Tribe for Coachella Valley Integrated Regional Water Management Plan Update.

CVRWMG. 2012. *Meeting Notes, Tribal Outreach Meeting*. August 14. Agua Caliente Tribal Offices. Palm Springs, CA. *[Tribal representative: Margaret Park]*

CVRWMG. 2012. *Meeting Notes, Tribal Outreach Meeting*. August 22. Twenty-Nine Palms EPA Tribal Offices. Coachella, CA. *[Tribal representatives: Marshall Cheung and Alison Millar]*

CVRWMG. 2012. *Meeting Notes, Tribal Outreach Meeting*. September 11. Cabazon Band - Fantasy Springs Resort. Indio, CA. *[Tribal representatives: Becky Ross and Jacquelyn Gonzales]*

CVRWMG. 2012. *Meeting Notes, Tribal Outreach Meeting* (A). September 13. Torres-Martinez - Coachella Valley Water District Training Facility. Palm Desert, CA. *[Tribal representatives: Debi Livesay and Roland Ferrer]*

CVRWMG. 2012. *Meeting Notes, Tribal Outreach Meeting* (B). September 13. Augustine - Coachella Valley Water District Training Facility. Palm Desert, CA. *[Tribal representative: Les Ramirez]*

Department of Water Resources (DWR). 2009. *California Water Plan Update 2009 Volume 3 Regional Reports: Colorado River Integrated Water Management, Bulletin 160-09.* Available: http://www.waterplan.water.ca.gov/docs/cwpu2009/0310final/v3_coloradoriver_cwp2009.pdf

Department of Water Resources (DWR). 2010. *Tribal Engagement Plan, Version 11-08-2010*. California Native American Tribal Engagement in the California Water Plan Update 2013.

U.S. Senate. 2002. *Senate Bill No. 1672, Integrated Regional Water Management Planning Act of 2002*.

Other Websites

Agua Caliente Cultural Museum http://www.accmuseum.org/About-the-Tribe. (Accessed July 16, 2013).

Planet Palm Springs Sovereign Nations. http://www.planetpalmsprings.com. (Accessed July 16, 2013).

STORET Data Warehouse. www.epa.gov/storet/ (Accessed July 31, 2013).

Tribal Websites

Agua Caliente Reservation. Website Available: http://www.aguacaliente.org/. (Accessed July 16, 2013).

Augustine Reservation. Website Available: http://www.augustinetribe.org/home.html. (Accessed July 16, 2013).

Cabazon Reservation. Website Available: http://www.fantasyspringsresort.com/prod/cbmi/index.html. (Accessed July 16, 2013).

Morongo Reservation. Website Available: http://www.morongonation.org/. (Accessed July 16, 2013).

Santa Rosa Reservation. Website Available: http://www.santarosacahuilla-nsn.gov/. (Accessed July 16, 2013).

Torres-Martinez Indian Reservation. Website Available: http://www.torresmartinez.org/. (Accessed July 16, 2013).

Twenty-Nine Palms Reservation. Website Available: http://29palmstribe.com/index.php. (Accessed July 16, 2013).

Objectives

City of Coachella (CWA). 2016. *2015 Urban Water Management Plan*. July. Available: http://www.coachella.org/documentcenter/view/1902

Coachella Valley Association of Governments (CVAG). 2007. *Coachella Valley Multiple Species Habitat Conservation Plan (CVMSHCP)*. Available: http://www.cvmshcp.org/

Coachella Valley Water District (CVWD). 2011. *2010 Urban Water Management Plan*. July.

Coachella Valley Water District (CVWD). 2012. *Coachella Valley Water Management Plan Update*. Available: http://www.cvwd.org/ArchiveCenter/ViewFile/Item/317

Coachella Valley Water District (CVWD). 2013a. *Engineer's Report on Water Supply and Replenishment Assessment, Lower Whitewater River Subbasin Area of Benefit 2013-2014*. April.

Coachella Valley Water District (CVWD). 2013c. *Engineer's Report on Water Supply and Replenishment Assessment, Upper Whitewater River Subbasin Area of Benefit 2013-2014*. April.

Coachella Valley Water District (CVWD). 2016a. *2015 Urban Water Management Plan*. July.

Coachella Valley Water District (CVWD). 2017. *Engineer's Report on Water Supply and Replenishment Assessment, 2016-2017*. April.

CVRWMG. 2012. *Coachella Valley Integrated Regional Water Management Plan Implementation Grant Agreement No. 4600009560*. June. Available: http://www.cvrwmg.org/docs/2012_07_18_CVRWMG-Proposition84-Round1-IntegratedRegionalWaterManagement(IRWM)_030702.pdf

Desert Water Agency (DWA). 2016. *2015 Urban Water Management Plan*. March.

Department of Water Resources (DWR). 2013. *California Water Plan 2013 Update*. Available: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/California-Water-Plan/Water-Plan-Updates/Files/Update-2013/Water-Plan-Update-2013-Volume-1.pdf

Indio Water Authority (IWA). 2016. *2015 Urban Water Management Plan*. May.

Milby Dawson, B.J., and Belitz, K., 2012, Status of groundwater quality in the California Desert Region, 2006-2008 – California GAMA Program Priority Basin Project: U.S. Geological Survey Scientific Investigations Report 2012-5040, 100 p.

Mission Springs Water District (MSWD). 2016. *2015 Urban Water Management Plan*. June.

State Water Resources Control Board (SWRCB). 2012. *Toxicity in California Waters: Colorado River Basin Region*.

State Water Resources Control Board (SWRCB). 2018. *Sewer Overflow Incident Map*. Available at: https://www.waterboards.ca.gov/water_issues/programs/sso/sso_map/sso_pub.shtml

Resource Management Strategies

California Air Resources Board (CARB). 2008. *Climate Change Scoping Plan: a Framework for Change*. December. Available: http://www.arb.ca.gov/cc/scopingplan/document/adopted_scoping_plan.pdf

California Environmental Protection Agency (CalEPA). 2010. *Climate Action Team Biennial Report*. December. Available: http://www.energy.ca.gov/2010publications/CAT-1000-2010-005/CAT-1000-2010-005.PDF

California Natural Resources Agency (CNRA). 2009. *2009 California Climate Adaptation Strategy*. Available: http://resources.ca.gov/climate_adaptation/docs/Statewide_Adaptation_Strategy.pdf

California Ocean Protection Council (OPC). 2011. *Resolution of the California Ocean Protection Council on Sea Level Rise*. March. Available: http://www.opc.ca.gov/webmaster/ftp/pdf/docs/OPC_SeaLevelRise_Resolution_Adopted031111.pdf

Coachella Valley Water District (CVWD). 2012. *Coachella Valley Water Management Plan Update*. Available: http://www.cvwd.org/news/publicinfo/2010_12_02_CVWMP_Update_Draft.pdf

Department of Water Resources (DWR). 2008. *Managing an Uncertain Future: Climate Change Adaptation Strategies for California's Water*. October. Available: http://www.water.ca.gov/climatechange/docs/ClimateChangeWhitePaper.pdf

Department of Water Resources (DWR). 2009. *California Water Plan Update 2009 Volume 3 Regional Reports: Colorado River Integrated Water Management, Bulletin 160-09*. Available: http://www.waterplan.water.ca.gov/docs/cwpu2009/0310final/v3_coloradoriver_cwp2009.pdf

Department of Water Resources (DWR). 2011. *Climate Change Annual Report*. Available at: https://water.ca.gov/LegacyFiles/climatechange/docs/CCAnnualReport2011-Final.pdf

Department of Water Resources (DWR). 2012. *Integrated Regional Water Management Proposition 84 and 1E Guidelines*. November.

Department of Water Resources (DWR). 2013. *California Water Plan 2013 Update*. Available: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/California-Water-Plan/Water-Plan-Updates/Files/Update-2013/Water-Plan-Update-2013-Volume-1.pdf

Department of Water Resources (DWR). 2016. *2016 Integrated Regional Water Management Grant Program Guidelines.* Available: http://abcrs.resources.ca.gov/guidelines/guideline_624.pdf

Project Evaluation

Coachella Valley Regional Water Management Group (CVRWMG). 2014. *Integrated Flood Management Planning Study*.

Department of Water Resources (DWR). 2016. *2016 Integrated Regional Water Management Grant Program Guidelines.* Available: http://abcrs.resources.ca.gov/guidelines/guideline_624.pdf

State Water Resources Control Board (SWRCB). 2015. *Storm Water Resource Plan Guidelines*. Available at: https://www.waterboards.ca.gov/water_issues/programs/grants_loans/swgp/docs/draft_guidelines_120315.pdf

Agency Coordination

City of Cathedral City. 2013. *Cathedral City Climate Action Plan.* May. Available: http://www.cathedralcity.gov/home/showdocument?id=5048

City of Coachella (CWA). 2014. *Climate Action Plan Public Draft.* June. Available: http://www.coachella.org/home/showdocument?id=2880%20

City of Desert Hot Springs. 2013. *City of Desert Hot Springs Climate Action Plan.* June. Available: https://www.cityofdhs.org/Planning_Documents

City of Indian Wells. 2013. *Indian Wells Climate Action Plan.* May. Available: http://www.cityofindianwells.org/civicax/filebank/blobdload.aspx?blobid=14530

City of La Quinta. 2012. *Draft Greenhouse Gas Reduction Plan.* July. Available: http://www.laquintaca.gov/home/showdocument?id=15955

City of Palm Desert. 2010. *The City of Palm Desert Environmental Sustainability Plan.* February. Available: http://www.cityofpalmdesert.org/home/showdocument?id=10652

City of Palm Springs. 2013. *Palm Springs Climate Action Plan.* May. Available: http://www.ca-ilg.org/sites/main/files/file-attachments/palm_springs-_climate_action_plan.pdf

City of Rancho Mirage. 2013. *Rancho Mirage Sustainability Plan.* March. Available: https://www.ranchomirageca.gov/wp-content/uploads/2016/03/Sustainability-Plan.pdf

Coachella Valley Water District (CVWD). 2002. *Coachella Valley Final Water Management Plan*. September. Available: http://www.cvwd.org/news/publicinfo/Coachella_Valley_Final_WMP.pdf

Coachella Valley Water District (CVWD). 2004. *Mid-Valley In-Lieu Program Draft Concept Paper*.

Coachella Valley Water District (CVWD). 2008. *Brackish Groundwater Treatment Pilot Study and Feasibility Study*.

Coachella Valley Water District (CVWD). 2012. *Coachella Valley Water Management Plan Update*. Available: http://www.cvwd.org/news/publicinfo/2010_12_02_CVWMP_Update_Draft.pdf

Coachella Valley Water District, Desert Water Agency, Mission Springs Water District (CVWD et al.). 2013. *Mission Creek and Garnet Hill Subbasins Water Management Plan*. January.

Department of Water Resources (DWR). 2003. *Bulletin 118 – Update 2003, California's Groundwater*. Available: http://www.water.ca.gov/pubs/groundwater/bulletin_118/california's_groundwater__bulletin_118_-_update_2003_/bulletin118_entire.pdf

Department of Water Resources (DWR). 2012. *Integrated Regional Water Management Proposition 84 and 1E Guidelines*. November.

Department of Water Resources (DWR). 2016. *2016 Integrated Regional Water Management Grant Program Guidelines.* Available: http://abcrs.resources.ca.gov/guidelines/guideline_624.pdf

Regional Water Quality Control Board Colorado River Basin Region (Regional Board). 2001. *National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements for Riverside County Flood Control District, Owner/Operator, County of Riverside, Owner/Operator, Coachella Valley Water District, Owner/Operator, and Incorporated Cities of Riverside County within the Whitewater River Basin, Owners/Operators for the Discharge of Whitewater River Watershed Storm Water (Order No. 01-077 [NPDES No. CAS617002])*. Available: http://www.waterboards.ca.gov/rwqcb7/board_decisions/adopted_orders/orders/2001/01_077wdr.pdf

Regional Water Quality Control Board Colorado River Basin Region (Regional Board). 2008. *Waste Discharge Requirements for Discharges from the Municipal Separate Storm Sewer System (MS4) within the Whitewater River Watershed, Riverside County Flood Control District, Owner/Operator, County of Riverside, Owner/Operator, Coachella Valley Water District, Owner/Operator, and Incorporated Cities of Riverside County within the Whitewater River Basin, Owners/Operators (Regional Board Order Number R7-2008-0001 [NPDES No. CAS617002])*. Available: http://www.waterboards.ca.gov/coloradoriver/board_decisions/adopted_orders/orders/2008/08_0001ms4_permit.pdf

Regional Water Quality Control Board Colorado River Basin Region (Regional Board). 2008. *Waste Discharge Requirement for Discharges from the Municipal Separate Storm Sewer System (MS4) within the Whitewater River Watershed, Riverside County Flood Control District, Owner/Operator, County of Riverside, Owner/Operator, Coachella Valley Water District, Owner/Operator, and Incorporated Cities of Riverside County within the Whitewater River Basin, Owners/Operators (Regional Board Order Number R7-2013-0011 [NPDES No. CAS617002])*. Available: http://www.swrcb.ca.gov/coloradoriver/board_decisions/adopted_orders/orders/2013/0011cv_ms4.pdf

Regional Water Quality Control Board, Colorado River Basin Region (Regional Board). 2017. *Water Quality Control Plan Colorado River Basin – Region 7 (Basin Plan)*. Available: https://www.waterboards.ca.gov/coloradoriver/water_issues/programs/basin_planning/docs/bp032014/entire_basinplan_combined.pdf

Riverside County Flood Control and Water Conservation District, County of Riverside, Coachella Valley Water District, Cities of Banning, Cathedral City, Coachella, Desert Hot Springs, Indian Wells, Indio, La Quinta, Palm Desert, Palm Springs, and Rancho Mirage (RCFCWCD et al.). 2009. *Whitewater River Region Stormwater Management Plan*. April. Available: http://www.ranchomirageca.gov/content_files/pdf/departments/public_works/ndpes_rules_part_1.pdf

Riverside County Planning Department. 2015. *County of Riverside Climate Action Plan.* December. Available: http://planning.rctlma.org/Portals/0/genplan/general_plan_2016/climate_action_plan/CAP_120815.pdf?ver=2016-04-01-101221-240

Salton Sea Authority (SSA). 2017. *Proposed Solutions.* Accessed October 5, 2017. Available: http://saltonseaauthority.org/get-informed/proposed-solutions/.

Salton Sea Authority (SSA). 2017a. *Salton Sea Management Program: Phase 1: 10-Year Plan.* Available: http://resources.ca.gov/docs/salton_sea/ssmp-10-year-plan/SSMP-Phase-I-10-YR-Plan-with-appendices.pdf

State Water Resources Control Board (SWRCB). 2015. *Storm Water Resource Plan Guidelines*. Available at: https://www.waterboards.ca.gov/water_issues/programs/grants_loans/swgp/docs/draft_guidelines_120315.pdf

Framework for Implementation

Riverside County Flood Control and Water Conservation District County of Riverside (RCFCWCD). 2017. *Whitewater River Region Monitoring Annual Report 2015-2016.* Available: http://rcflood.org/downloads/NPDES/Documents/WW_Annual/2015-2016WWRMonitoringRpt.pdf

Rural Communities Assistance Corporation. 2010. *Coachella Valley Water Systems Assessment*. March.

Page intentionally left blank.

Prepared by:

WOODARD &CURRAN

10509 Vista Sorrento Pkwy
Suite 205
San Diego, CA 92121
858.875.7400