

Attachment 7 consists of the following:

- ✓ **Description of Disadvantaged Communities in the Project Area.** Includes an analysis using the CalEnviroScreen 2.0 tool, as well as a description of the disadvantaged communities that will benefit from the project.

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Regional Turf Reduction Program and DWA Energy Efficiency Project

DAC Needs and Benefits

DAC Needs

Coachella Valley Water District (CVWD) and Desert Water Agency (DWA), the agencies submitting this grant proposal have been significantly involved in the Integrated Regional Water Management (IRWM) Program in the Coachella Valley IRWM Region over the past several years. CVWD and DWA are members of the Coachella Valley Regional Water Management Group (CVRWVG), the governing body of the Region, along with the City of Coachella/Coachella Water Authority, the City of Indio/Indio Water Authority, and Mission Springs Water District. As documented in the *2014 Coachella Valley IRWM Plan*, the Coachella Valley has a wide range of disadvantaged communities (DACs) from different demographics, including migrant and seasonal farm workers, low-income families, low-income seniors, and others. For the purposes of IRWM planning and for inclusion in the IRWM planning and implementation grant proposals, DWR applies the DAC definition from Public Resources Code (PRC) §75005.(g) that states DACs are communities with annual Median Household Incomes (MHIs) less than 80% of the Statewide average MHI. The evaluation to identify DACs in the Coachella Valley IRWM Region is described in the following section.

The *Coachella Valley DAC Outreach Program* that was implemented concurrently with development of the *2014 Coachella Valley IRWM Plan* included extensive ground surveys to better-define DAC issues and needs in the Region, including within the CVWD and DWA service areas. Through this survey process, three primary water-related concerns were consistently raised by DAC stakeholders: water supply (drinking water), wastewater, and flooding. Further information on DAC needs and issues can be found in Volume I of the *2014 Coachella Valley IRWM Plan* in *Chapter 4, Disadvantaged Communities*, which is included within **Appendix A**.

While there are DACs located throughout the Coachella Valley, the survey conducted through the DAC Outreach Program found that the most dire and pressing issues tend to be found in places where DACs do not receive municipal water supply or wastewater services. Such areas are most heavily concentrated in the eastern Coachella Valley, southeast of the cities of Indio and Coachella. Within the eastern Coachella Valley, the survey indicated the presence of many small mobile home park communities that rely on onsite drinking water systems that were in a notable state of disrepair. Specifically, surveyors noted onsite leaking and ponding of water, pipes that were corroding or breaking, and pipes that were not properly connected or jointed and could therefore potentially carry contaminated water into the mobile home units.

Over 75% of the DACs in the Coachella Valley Region overlie the Coachella Valley Groundwater Basin. Urban water supply for the Coachella Valley is primarily groundwater pumped from two sub-basins of the Coachella Valley Groundwater Basin: the Indio Sub-Basin and the Mission Creek Sub-Basin. The Coachella Valley Groundwater Basin has an estimated storage capacity of 39 million acre-feet (AF) of water. Since the 1980s, groundwater pumping has increased and caused water levels in the eastern Coachella Valley to decline despite replenishing the groundwater basin with imported water. CVWD estimates the decrease in groundwater stored in the Coachella Valley Groundwater Basin for 1999 to be 137,000 AF, with a cumulative groundwater basin overdraft (when outflow from the basin exceeds inflow to the basin) of nearly 4.8 million AF between 1936 and 1999.¹

Due to potentially significant consequences caused by groundwater basin overdraft that are described extensively in the Region's 2014 Integrated Regional Water Management (IRWM) Plan, the Region has developed water supplies to supplement and replenish groundwater supplies. CVWD and DWA are State Water Contractors and have obtained additional water supplies through the State Water Project (SWP), which is exchanged for Colorado River water via the Metropolitan Water District of Southern California's

¹ Coachella Valley Water District (CVWD). 2002. *Coachella Valley Final Water Management Plan*.

(MWD) Colorado River Aqueduct because there is no physical system available to directly deliver SWP supplies to the Region. In addition, CVWD is a signatory to the Quantification Settlement Agreement (QSA), which is a formal legal agreement that quantifies the amount of Colorado River water available to applicable parties, including CVWD. As such, CVWD receives Colorado River supply in accordance with the QSA via the Coachella Canal (Canal Water) for agricultural irrigation and other non-potable purposes.

Reduction of imported water supplies, including SWP supplies, has the potential to jeopardize the Region's groundwater management strategies and exacerbate groundwater overdraft conditions and impacts to DACs. The 2014 drought had a direct impact on the Region as it reduced SWP deliveries to 5% allocation across California, which reduces artificial recharge of the aquifer (groundwater basin replenishment) in the Region.

In addition to groundwater overdraft from increased groundwater pumping, the region is also experiencing increased energy demand and greenhouse (GHG) emissions. In 2009, electrical energy demand for water management in the Coachella Valley was 211,130,000 kilowatt hours per year (kWhr/yr); it is estimated that groundwater pumping attributed to 93 percent of this overall demand (CVWD 2011). With the implementation of conservation, such as the Regional Turf Reduction Program, energy consumption for groundwater pumping would be reduced. During drought conditions, such as these California is currently experiencing, when groundwater basin replenishment is reduced, groundwater levels will decline, requiring deeper wells, pumps capable of higher lifting, and therefore increased energy consumption to pump groundwater. Increased energy demand and new well construction could lead to significant economic impacts as well as and social costs associated with increased greenhouse gas emissions.

Program Benefits to DACs

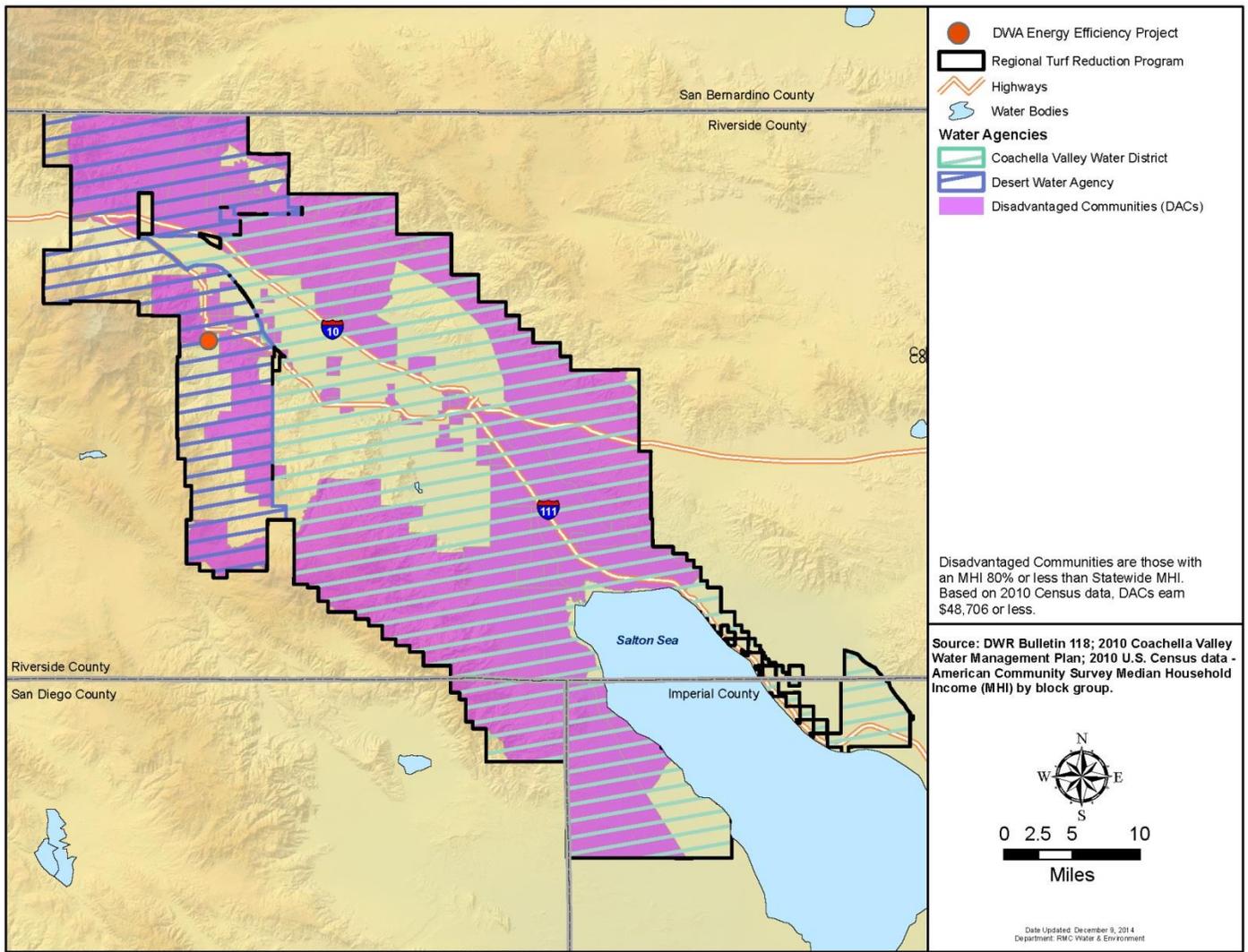
This *Regional Turf Reduction Program* and the *DWA Energy Efficiency Project* will benefit DACs in the CVWD and DWA service areas by reducing potable water demands through water-efficient landscaping and improving energy efficiency for DWA's Well 20. Additionally, through reduced groundwater pumping, water will be saved, resulting in energy savings and avoided GHG emissions in the service areas. Through reduced groundwater pumping, this project will also create regional benefits, including reduced groundwater basin overdraft and increased water security resulting in indirect benefits to all users overlying and relying upon the Coachella Valley Groundwater Basin. These regional benefits are anticipated to help avoid water cost increases by helping to cost-effectively manage the Region's groundwater resources. The *2014 Coachella Valley IRWM Plan* documents that DACs may be disproportionately affected by increased water costs and that it is an objective for the IRWM Region to maintain water affordability. The Regional Turf Reduction Program will provide benefits to DAC residents in the CVWD and DWA service areas by saving water, energy, and reducing GHG emissions, and also to DACs overlying the Coachella Valley Groundwater Basin by providing a cost-effective way to manage the Region's groundwater resources and helping to avoid future water cost increases.

DAC Evaluation Using Census Data and IRWM Definition

As previously described, under the IRWM program, DWR defines a DAC as a community with an annual MHI that is less than 80% of the Statewide MHI. For the Coachella Valley IRWM DAC analysis, data from the American Community Survey (ACS) of the U.S. Census was used as a source of MHI data for determining if a community is a DAC. According to this data source, the ACS for the years 2006-2010 shows that 80% of the Statewide MHI is \$48,706. Therefore, according to this definition, a DAC is a community with an MHI of less than \$48,706.

Using the same methodology applied in the *2014 Coachella Valley IRWM Plan*, MHIs in the CVWD and DWA service areas were estimated through an analysis of the 2010 ACS data at the Census block group level. The following figure shows the DACs within the CVWD and DWA service areas based on the definition that a DAC is a Census tract with an annual MHI less than 80% of the California MHI. A total of 63% of the area of benefit (the CVWD and DWA service areas) is considered DACs.

Figure 7-1: DACs Based on MHI Data

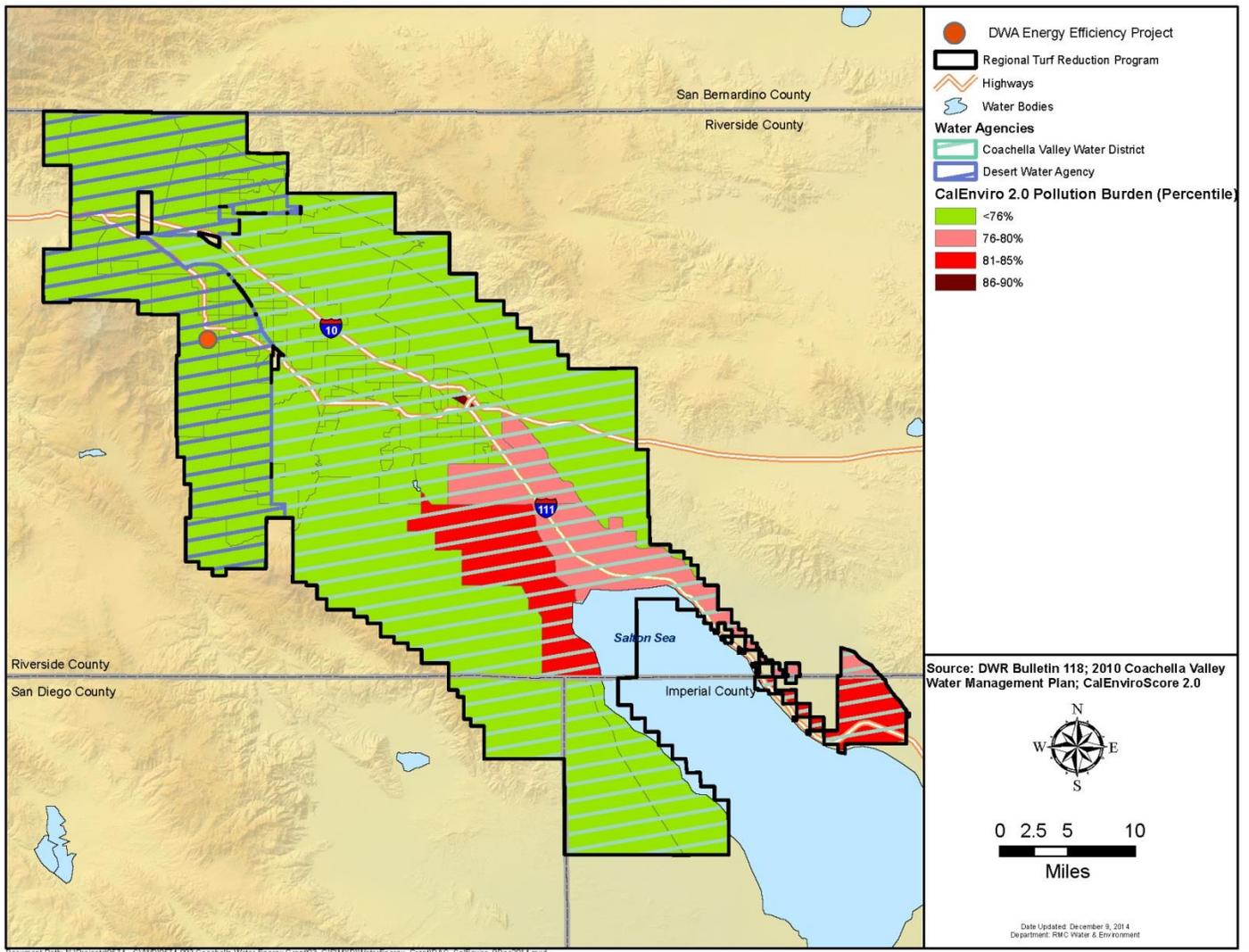


DAC Evaluation Using CalEnviroScreen 2.0

According to Appendix B, Definitions, of the Water-Energy Grant Program PSP, the CalEnviroScreen 2.0 is a screening methodology used to identify California communities that are disproportionately burdened by multiple sources of pollution. A DAC is any community identified by the tool with a score of 76% or higher.

According to the PSP, for a proposal to be considered for the DAC preference, it must demonstrate that at least 75% of the proposal's benefits are received by at least a portion of a census tract with a CalEnviroScreen 2.0 score of 76% or higher. As shown in Figure 7-2, only small portions of the CVWD and DWA service areas have scores of 76% or higher. A total of 17% of the area of benefit (the CVWD and DWA service areas) are DACs according to the CalEnviroScreen data and definition.

Figure 7-2: DAC Analysis using CalEnviroScreen Data



While the area of benefit does not qualify for the DAC preference, the CVWD and DWA service areas and the region are viewed locally as DACs.

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Appendix A: Reference Documents



4 Disadvantaged Communities

This chapter addresses the needs and priorities of the Coachella Region's Disadvantaged Communities (DAC) and consolidates all the various areas of the IRWM planning that relates to DAC issues into this chapter.



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 Region (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 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 Plan. Volume II also includes a series of appendices containing the results of the DAC Outreach Survey (see Section 4.3.4, below), mapping efforts, DAC demonstration projects (described in Section 4.4, 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 Plan, text will say “Volume II” and “Appendix VII,” respectively. Volume II of the IRWM 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 Region contained many DACs and those DACs had substantial water-related needs along with other early efforts, such as Coachella Valley Water District'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 Coachella Valley Water District 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.

Mission Springs Water District (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 and the U.S. Bureau of Reclamation as well as the IRWM Proposition 84-Round 1 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 Disadvantaged Community 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: <http://regionalchange.ucdavis.edu/ourwork/publications/ceva-ecv/revealing-the-invisible-coachella-valley-putting-cumulative-environmental-vulnerabilities-on-the-map>

[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* of the 2014 IRWM Plan Update 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, disadvantaged community representatives, and other local water management stakeholders that serve an advisory role for the development of the 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 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 Plan.

4.1.2 Previously Characterized Issues and Needs

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

Preliminary work with DAC groups in the Coachella Valley IRWM 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 and solutions to prevent dry weather runoff flows from entering regional facilities such as the Coachella Valley Stormwater Channel. 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 disadvantaged community 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 Coachella Valley IRWM 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 CVRWGM 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 Project and a septic-to-sewer conversion project, were funded by the Proposition 84 Implementation Grant. Those projects are described in detail below.

Short-term Arsenic Treatment (STAT) Project

The STAT Project is based on a pilot program implemented at a mobile home park (San Antonio del Desierto) by Pueblo Unido Community Development Corporation (PUCDC), a local non-profit organization that provides support to DACs in the eastern Coachella Valley (East Valley). PUCDC 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 East Valley. The STAT Project uses 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 has 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 is currently being implemented by PUCDC, will address water quality issues in DACs located in the eastern Coachella Valley. This project received \$564,000 in IRWM grant funding, and will directly help 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 will extend 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 Sub-basin. This project will eliminate 181 septic tanks that threaten contamination of groundwater supply, and will protect hot mineral water which is the economic basis of the Desert Hot Springs community’s (a DAC) spa industry. The project will, therefore protect 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 Mission Springs Water District and this project is currently being implemented.



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.

4.2 DAC Outreach Program Activities

This section describes the DAC Outreach Program and methods used to broaden the participation of DACs in the IRWM 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 the existing list of 29 Coachella Valley Region DAC stakeholders, an initial email was sent to introduce the Coachella Valley Disadvantaged Community 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: dmcocad@intpin.com
or contact Diana Cozad at (909) 793-8498



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 (CVRWMP), 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 CVRWM 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 dmcocad@intpin.com or contact Diana Cozad at (909) 793-8498 with any leads you can provide.

The CVRWMP 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
360 Lakeside Ave
Redlands, CA 92373
(909) 793-8498 www.intpin.com

Attachment: Coachella Valley IRWM and DAC Contact Update form

In addition, after researching other organizations that work with disadvantaged community 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 4.1.4 Outreach Mechanisms*. DAC stakeholders were also asked if they would like to participate in the DAC mapping process (described in *Section 4.3* 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 GIS/demographic data would be used to characterize DAC focus areas. In total, 14 DAC focus areas were defined for the Coachella Valley IRWM Region; those focus areas are described in *Section 4.3.2*.

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 current list of members of the DAC Issues Group 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 Assemblymember 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 East Valley and one in the West 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 Coachella Valley IRWM 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

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* 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.



DAC Workshops were well attended, and presented bilingually

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*), 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*), present information

about the projects that were developed through the DAC Outreach Program (refer to *Section 4.4*), and receive input about the findings reached in the DAC Outreach Program Final Report.

4.2.4 Outreach Mechanisms

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.

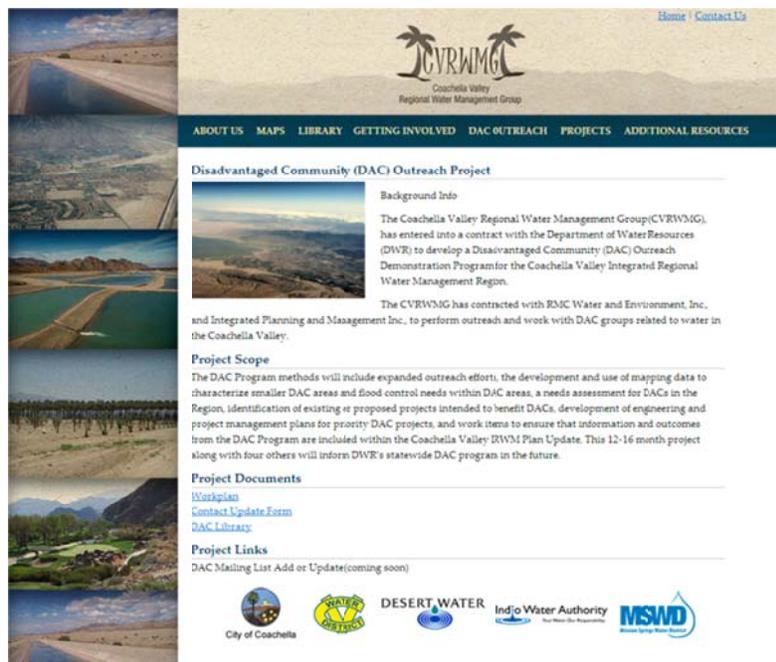
Project Selection Outreach Meetings

During the project solicitation process for each round of IRWM grant funding, the CVRWMP 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.

CVIRWM Website

A page for the DAC Outreach Program within the existing Coachella Valley IRWM Program website (www.cvrwmg.org) was developed and 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.

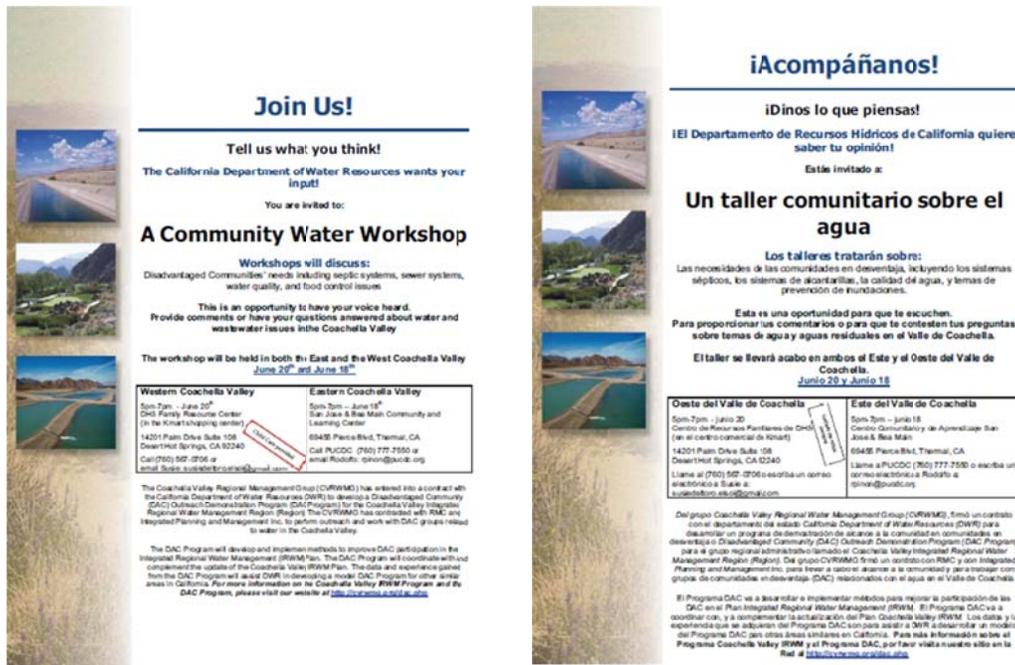
Figure 4-2: Screenshot of the DAC Outreach Project portion of the IRWM Website



Notices and Flyers

Notices and flyers were created in English and Spanish for workshops and were distributed to the various stakeholder lists. 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



Data Management System

In order 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, CVRWVG, 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.

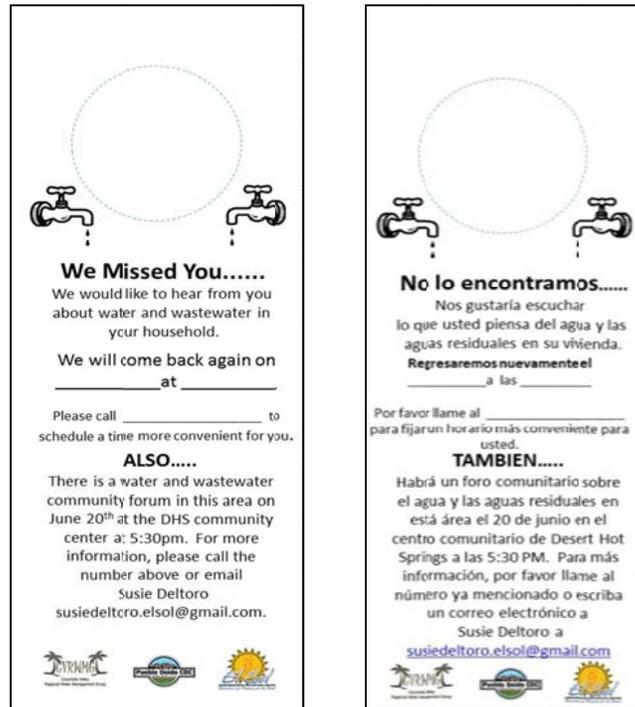
Although initially conceptualized as potential outreach mechanisms, after discussions with DAC members, newsletters and press releases were not considered to be useful as outreach mechanisms in communities in the Coachella Valley.



Door Hangers

Door hangers were used to invite community members to participate in the Community Water Workshops.

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 Water Quality Control 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 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 a number of 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 CVRWGM agencies. The issues are more complex due to the fact that 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 East 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; in order 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 Water Quality Control 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*).

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 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 Coachella Valley IRWM 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 Plan and presented in **Volume II**), the CVRWGMG 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
<i>General Participation</i>		
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*
<i>Grant Funding</i>		
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

*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 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

*The CVRWMG would implement these 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 percent 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*, 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

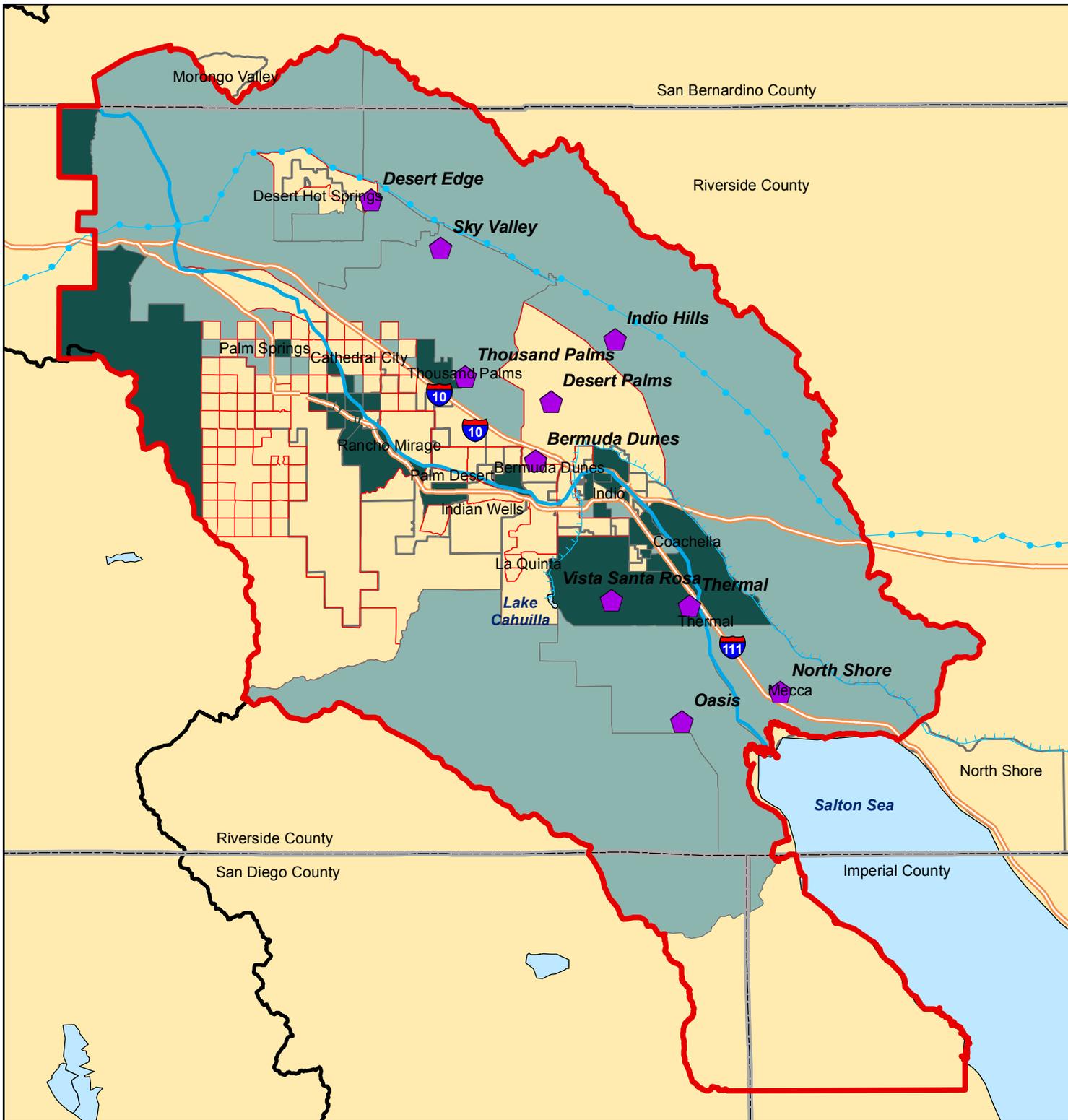
The 2010 IRWM Plan draft initially used 2000 U.S. Census information updated with income information from 2005 American Community Survey. DAC stakeholders that provided input on the Public Draft of the 2010 IRWM Plan commented that the U.S. Census data used to produce DAC maps was too out of date to 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 plan. **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** shows the location of DACs in the Coachella Valley using updated U.S. Census data from 2010 (block-group level). As seen in the graphic, many disadvantaged and severely disadvantaged communities are located 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 4-8**. 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: White Water, Desert Hot Springs, Garnet, Desert Edge, Cathedral City, Sky Valley, Thousand Palms, Coachella, Thermal, Mecca, Oasis, North Shore, Desert Shores and Salton City.

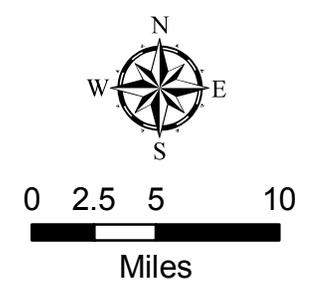
2010 IRWM Plan Disadvantaged Communities (2000 Census)

Figure 4-5



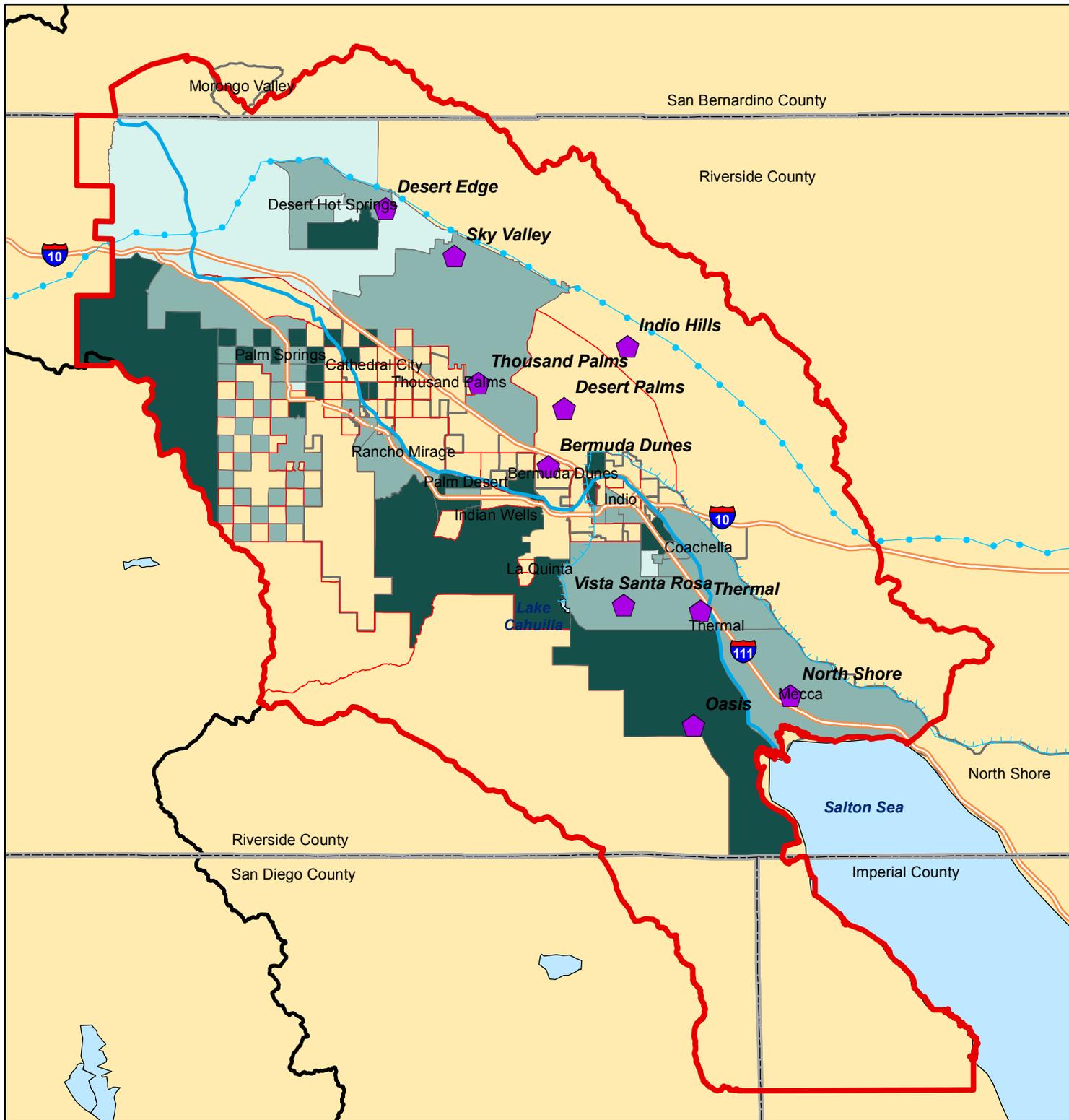
- Community Councils
 - Colorado River Aqueduct
 - Coachella and All American Canals
 - Whitewater River Stormwater Channel
 - Interstate Hwys.
 - Lakes
 - City or Unincorporated Community
 - Coachella Valley IRWM Region
 - Colorado River Funding Area
 - County Lines
- Median Household Income (2000)
- \$0 - \$20,000
 - \$20,000 - \$30,000
 - \$30,000 - \$37,994
 - >\$37,994

Statewide median household income (MHI) in year 2000 was \$47,493. Disadvantaged communities are considered those who earned less than \$37,994 (80% Statewide MHI). Data analyzed at the census tract level.



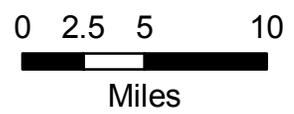
2010 IRWM Plan Disadvantaged Communities (Claritas Data)

Figure 4-6



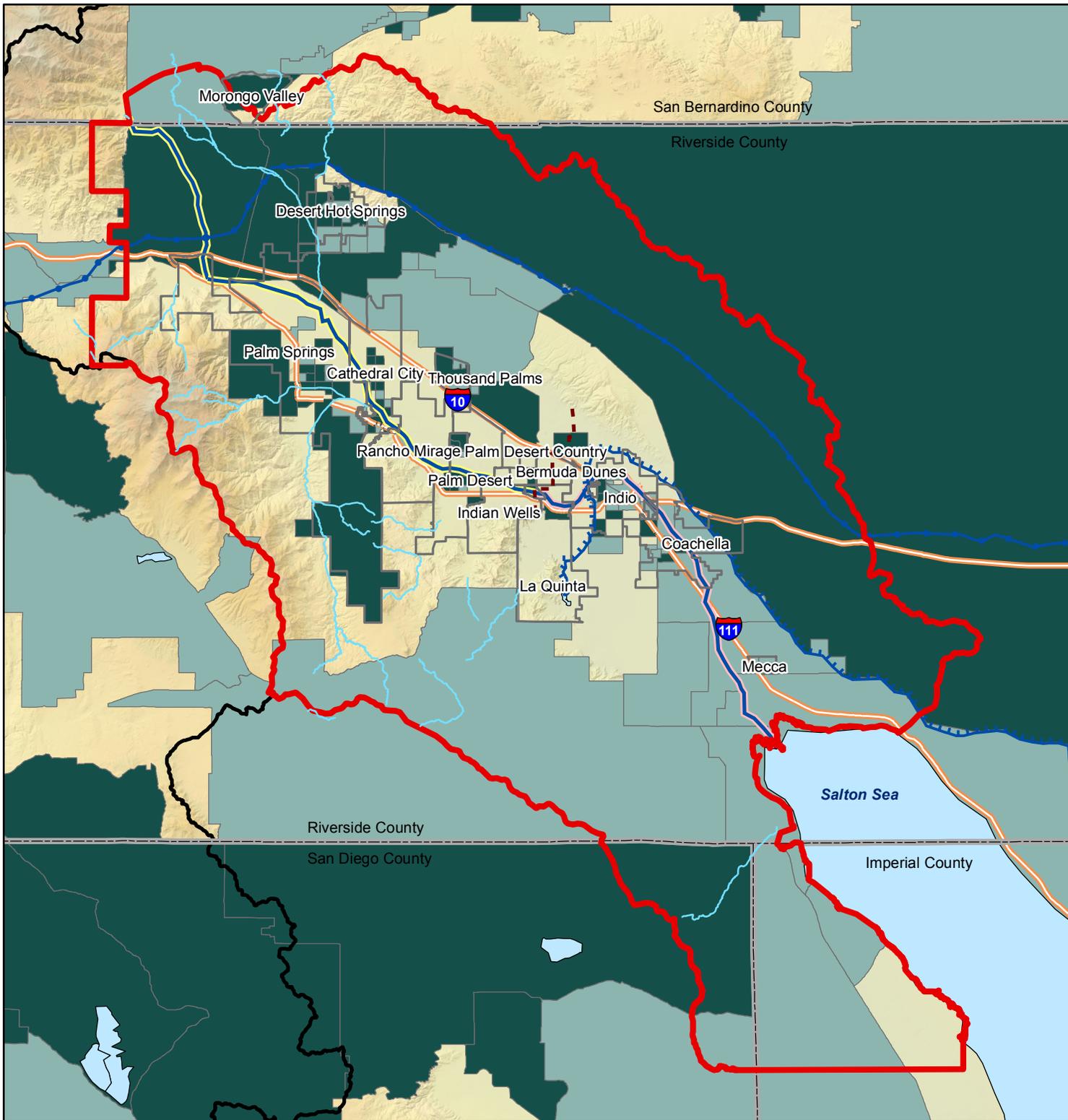
- Community Councils
 - Colorado River Aqueduct
 - Coachella and All American Canals
 - Whitewater River Stormwater Channel
 - Interstate Hwys.
 - Lakes
 - City or Unincorporated Community
 - Coachella Valley IRWM Region
 - Colorado River Funding Area
 - County Lines
- Median Household Income (2010)
- \$0 - \$30,000
 - \$30,000 - \$40,000
 - \$40,000 - \$49,921
 - >\$49,921

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). Data analyzed on the census block-group level. Source: Nielsen Claritas 2010



Coachella Valley Disadvantaged Communities (2010 Census)

Figure 4-7



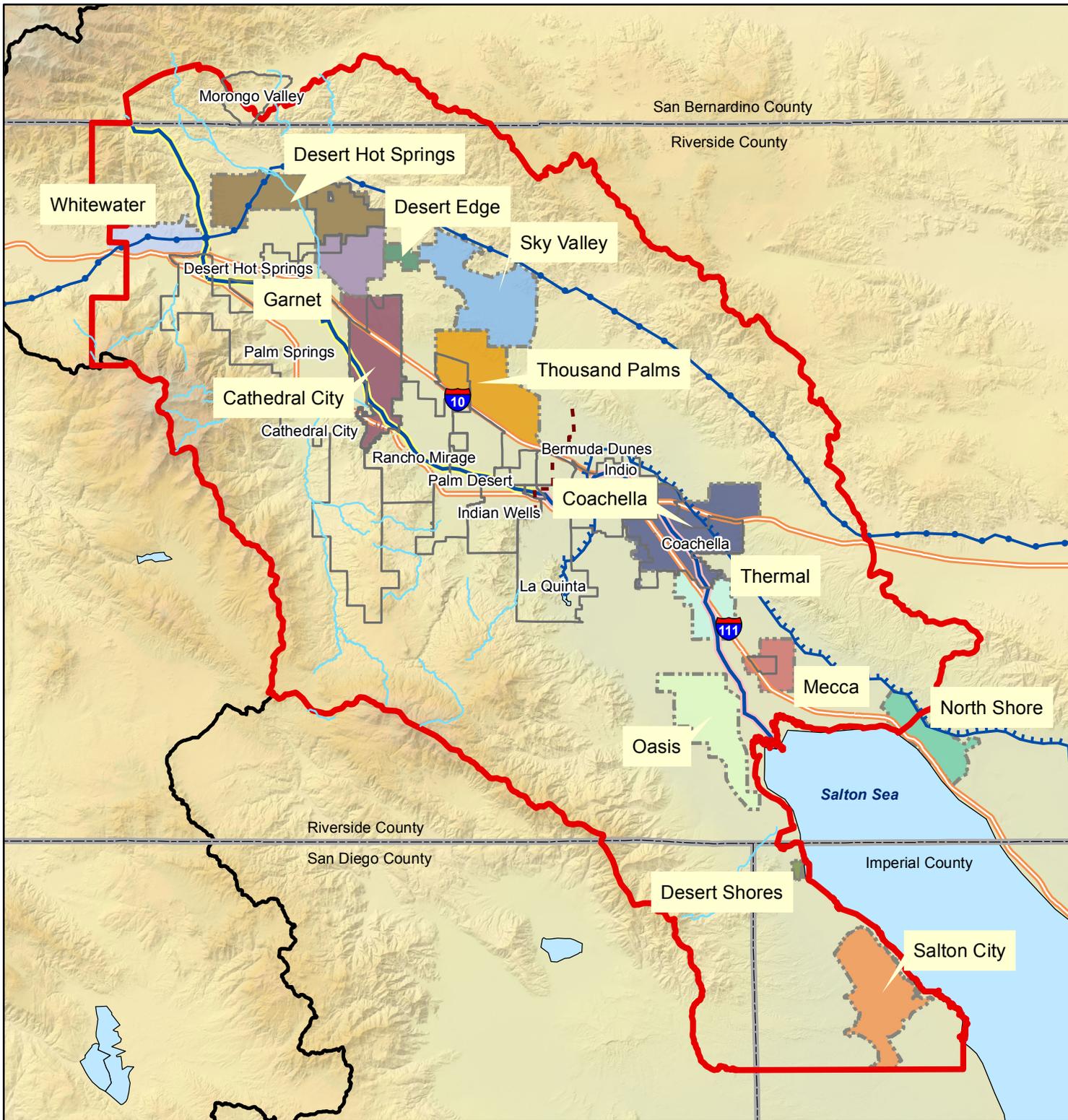
- Division between West and East Valley
- Colorado River Aqueduct
- Coachella and All American Canals
- Whitewater River Storm Water Channel
- Coachella Valley Storm Water Channel
- Highways
- Water Bodies
- City
- Coachella Valley IRWM Region
- Colorado River Funding Area
- Disadvantaged Community (DAC)**
- \$0 - \$36,530 (Severely DAC)
- \$36,530 - \$48,706 (DAC)

Source: 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. Severely DAC are areas with MHI 60% or less of Statewide MHI. Severely DACs earn less than \$36,531 in 2010.



Coachella Valley Disadvantaged Community Focus Areas

Figure 4-8



- Division between West and East Valley
- Colorado River Aqueduct
- Coachella and All American Canals
- Whitewater River Storm Water Channel
- Coachella Valley Storm Water Channel
- Highways
- Water Bodies
- City
- Coachella Valley IRWM Region
- Colorado River Funding Area
- Disadvantaged Community Focus Area

Source: 2010 U.S. Census, block level





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.¹ 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 percent 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 East than the West in the Coachella.

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 West than the Eastern Coachella Valley with the exception of 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

¹ (Environmental Systems Research Institute 2012)



the United States in the last 10 years. Language is a significant barrier and over 50 percent have not finished high school limiting their employment options. Nationally over 50 percent of the residents in this class are children. Unemployment is high in this class generally above 15 percent 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 East 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 percent. In the Coachella Valley 6 of the 14 focus areas include this class which is distributed in both the east and west valley focus areas. This class appears to correlate directly to lower MHI in the East 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 Coachella Valley IRWM Region. The 49. 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	
White Water	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 percent 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 percent 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 on the west side of the Coachella Valley (West Valley). The lower values are to the South and East end of the Coachella Valley, especially below Avenue 60 or east of the Interstate-10 freeway.



Spatial Variability and Temporal Changes

The southeast end of the Coachella Valley (East Valley) has significant agriculture, and in areas like Oasis a majority of the homes 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 north end of the valley especially on the eastern side (West Valley), 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, a majority of houses in the West 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 East Valley; however these areas still require significant assistance. The West Valley areas have low rental costs between \$600 and \$800 per month; however vacancy rates are high at nearly 30 percent.

Also in many portions of the Region, the greater detail within which an area is assessed, the more high 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 common 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. This is in contrast to 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-50's. 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.

Table 4-5: Focus Area Select Statistics

Focus Area	Population	House-holds	HH Size	Acres	Density Res/Acre	MHI	Owner %	Renter %	Median Age
White Water	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 disadvantaged community 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 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 Community Development Corporation (PUCDC) were the organizations responsible for gathering and training surveyors and administering surveys in the West Valley and the East 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 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. 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 *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 West Valley survey area located in and near MSWD and DWA’s service areas had a wider variety of responses (refer to **Figure 4-11**). Further, many respondents across the Region were unsure of the source of their water. The perceived tap water quality map (see **Figure 4-12**) showed a similar pattern – within most study areas, respondents generally provided the same or similar response. The lowest perceived water quality was in the East Valley, particularly in the south and near the Salton Sea, and the highest perceived water quality was in the West 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 East 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 a number of respondents indicating they did not know what type of wastewater systems they were using (refer to **Figure 4-13**). 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 West Valley, or the southernmost survey area in the East 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 4-14**).

Survey Indications

98 percent 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 Coachella Valley IRWM 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 West Valley) that may be well-served by contacting their jurisdictions to report code compliance and other resolvable issues.



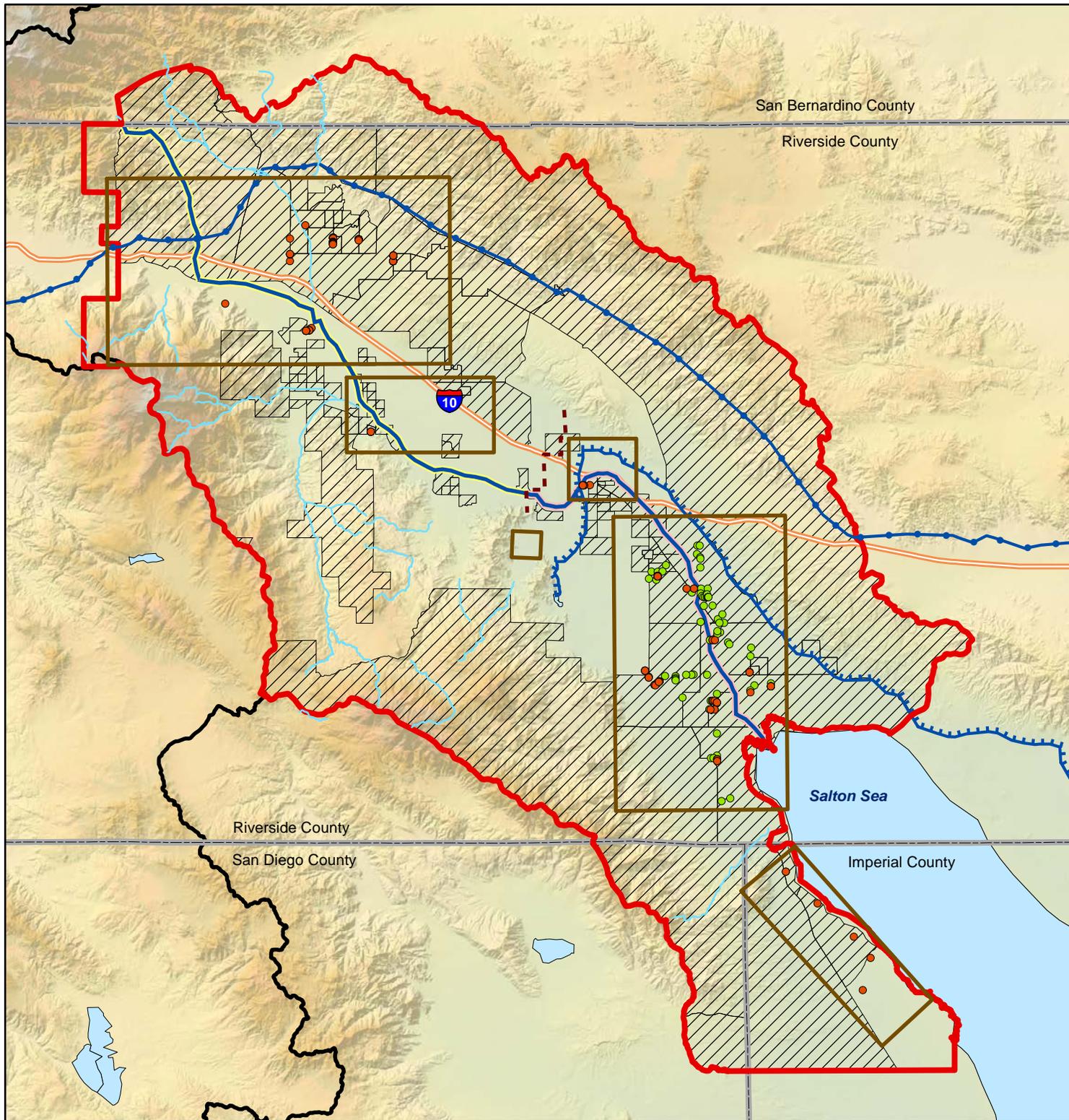
A perception of poor quality tap water was reported by 32 percent of respondents, while 53 percent believed their tap water was of moderate quality. Only 35 percent of respondents reported that they drink tap water. However, 47 percent of respondents reported occasionally running out of drinking water, whether it was tap water or purchased water (e.g., bottled water), and 18 percent of respondents reported having contaminated water. Despite the perception of contaminated drinking water, a number of 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 in order 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 percent of respondents, with wastewater system failures more prevalent in the East Valley than the West Valley. The survey also found that the reported wastewater system fail rate among survey respondents was significantly higher than the reported 1-4 percent for California, and even the national failure rate of 10-20 percent. Overall, 30 percent of the wastewater failures reported by residents occur only once per year, though West Valley respondents reported more frequent wastewater system failures than East Valley respondents (refer to **Table 9** in the Report), indicating that West Valley communities may have more severe wastewater problems than East 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 Coachella Valley Stormwater Channel (refer to **Figure 4-14**). 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.

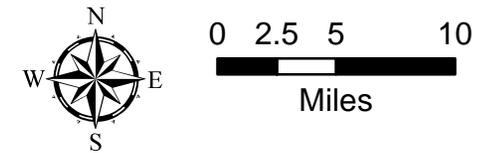
Location of Mobile Home Parks

Figure 4-9



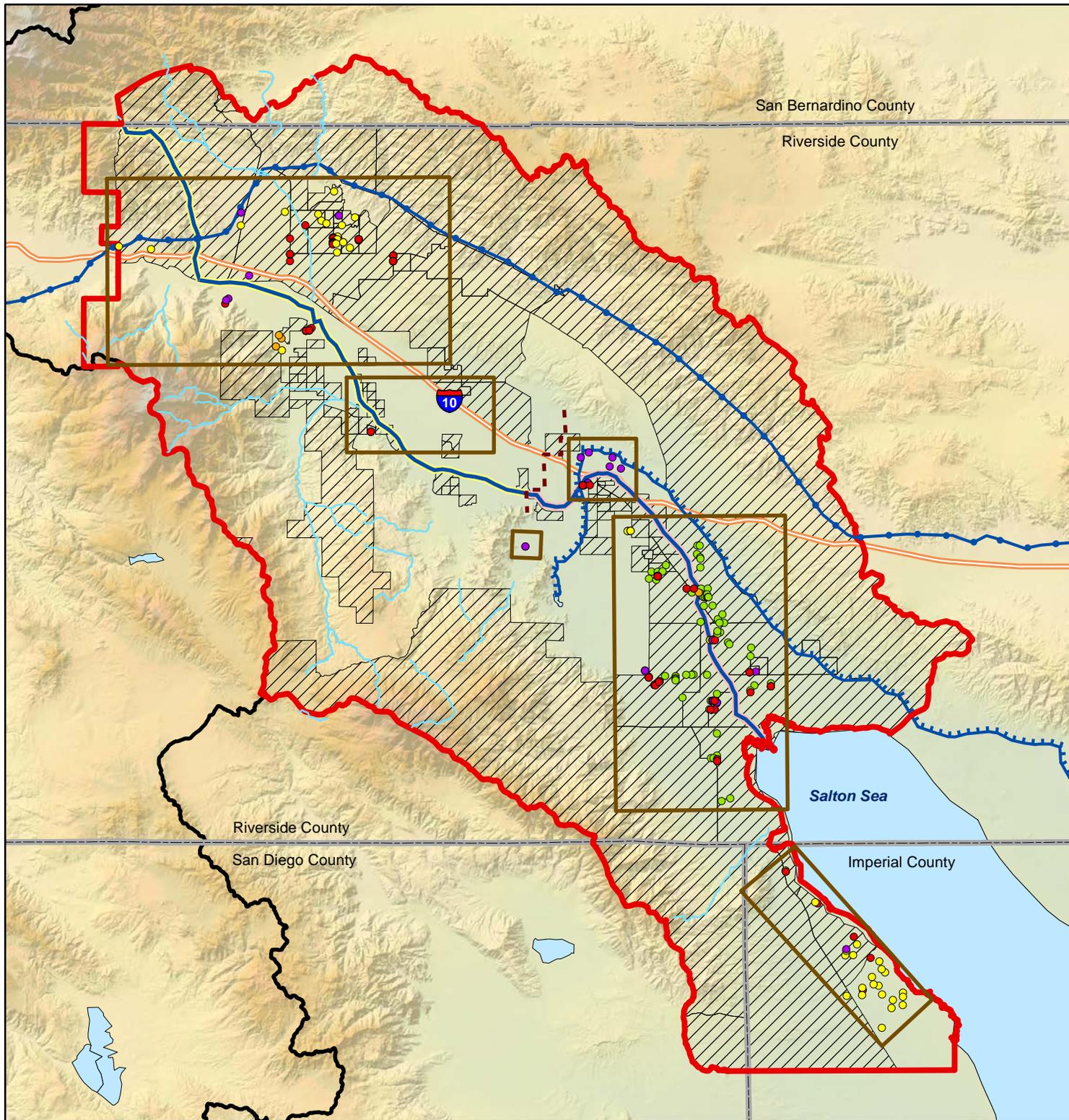
- Mobile Home Park (MHP) validated by survey
- MHP validated during June 2012
- - - Division between West and East Valley
- Colorado River Aqueduct
- Coachella and All American Canals
- Whitewater River Storm Water Channel
- Coachella Valley Storm Water Channel
- Highways
- Water Bodies
- Coachella Valley IRWM Region Colorado
- River Funding Area
- County Lines
- Survey Area
- Disadvantaged Community (DAC)

Source: 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.



Dwelling Type for Survey Respondents

Figure 4-10



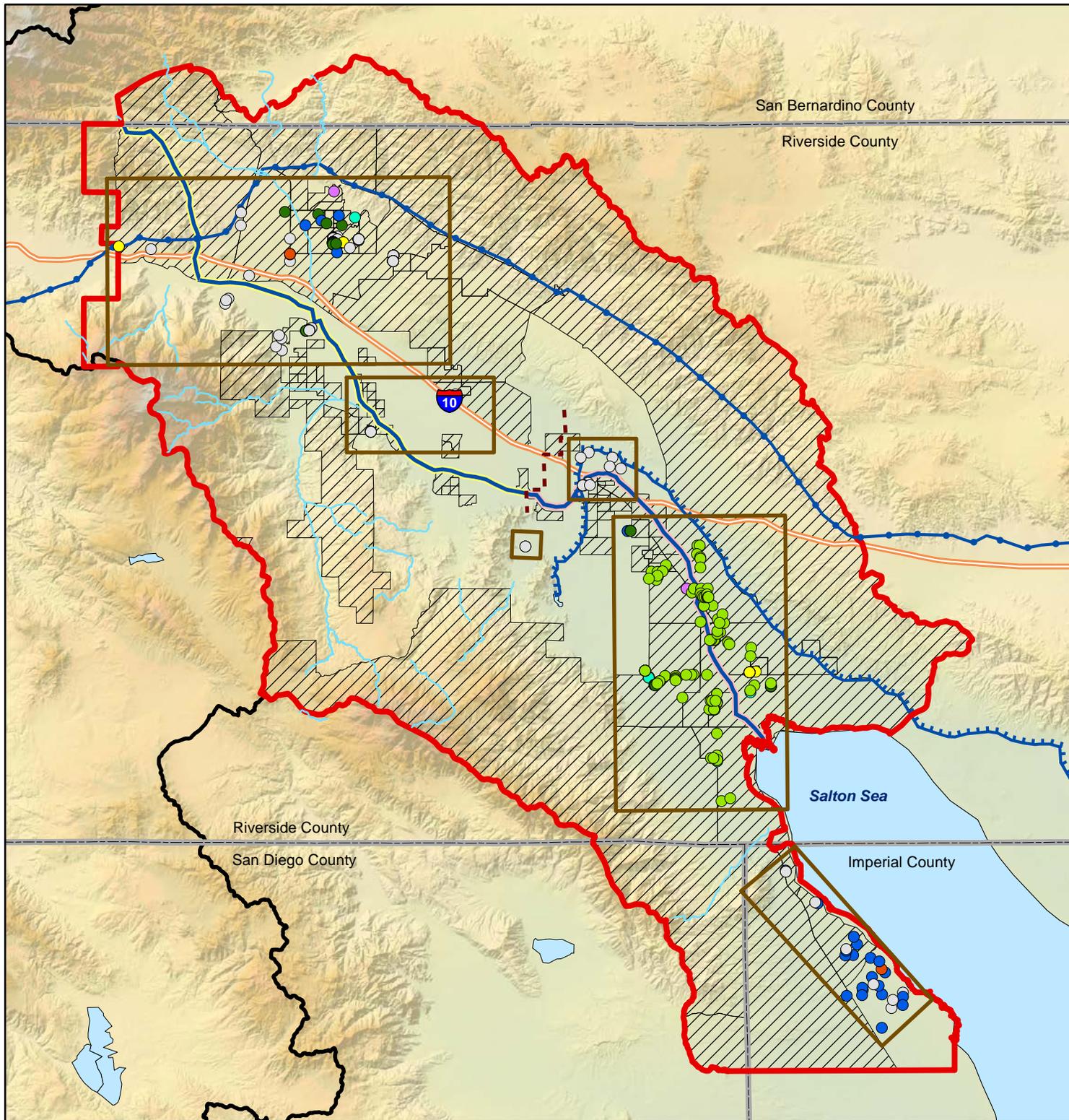
- Dwelling Type**
- Mobile Home Park
 - Apartment
 - Single Family Home
 - Unknown
 - MHP validated during June 2012 study
- - - Division between West and East Valley
 - Colorado River Aqueduct
 - Coachella and All American Canals
 - Whitewater River Storm Water Channel
 - Coachella Valley Storm Water Channel
 - Highways
 - Water Bodies
 - Coachella Valley IRWM Region
 - Colorado River Funding Area
 - County Lines
 - Survey Area
 - Disadvantaged Community (DAC)

Source: 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.



Perceived Water Supply Type

Figure 4-11



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 - Unknown
- Division between West and East Valley
- Highways
- Colorado River Aqueduct
- Coachella and All American Canals
- Whitewater River Storm Water Channel
- Coachella Valley Storm Water Channel
- Coachella Valley IRWM Region
- Colorado River Funding Area
- Survey Area
- Disadvantaged Community (DAC)

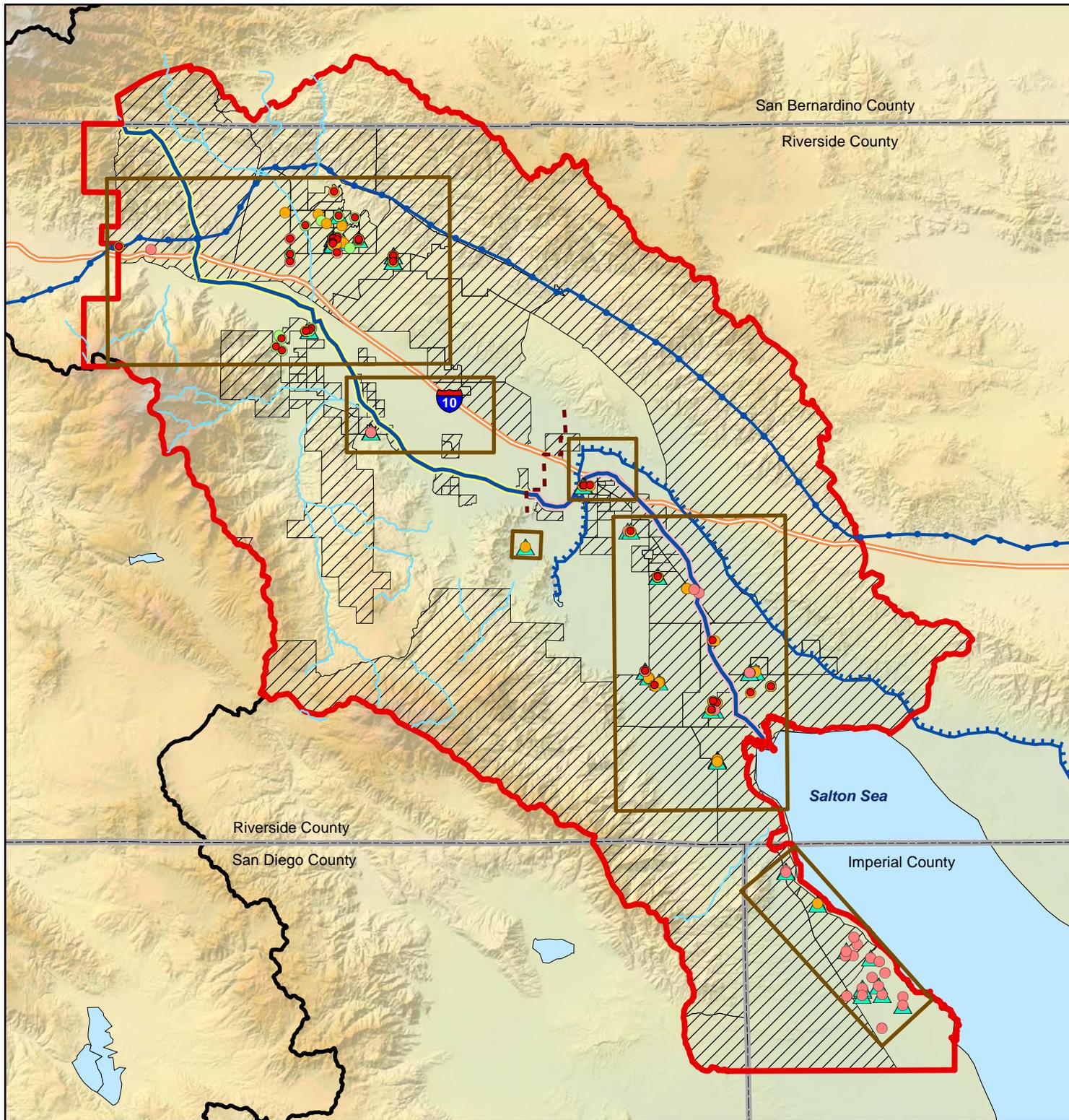
*Based on respondents' perceptions of supply origin, Results have not been independently validated.

Source: 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.



Perceived Tap Water Quality

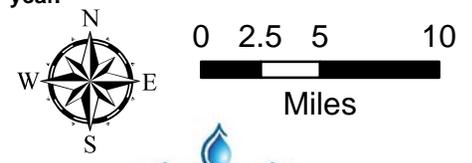
Figure 4-12



- Respondents who said they drink their tap water
 - ▲ Respondents who perceived that their drinking water was contaminated
- Tap water quality***
- Poor
 - Moderate
 - Excellent
- - - Division between West and East Valley
 - Colorado River Aqueduct
 - Coachella and All American
 - Whitewater River Storm Water Channel
 - Coachella Valley Storm Water Channel
 - Highways
 - ▭ Coachella Valley IRWM Region
 - ▭ Colorado River Funding Area
 - ▭ Survey Area
 - ▨ Disadvantaged Community (DAC)

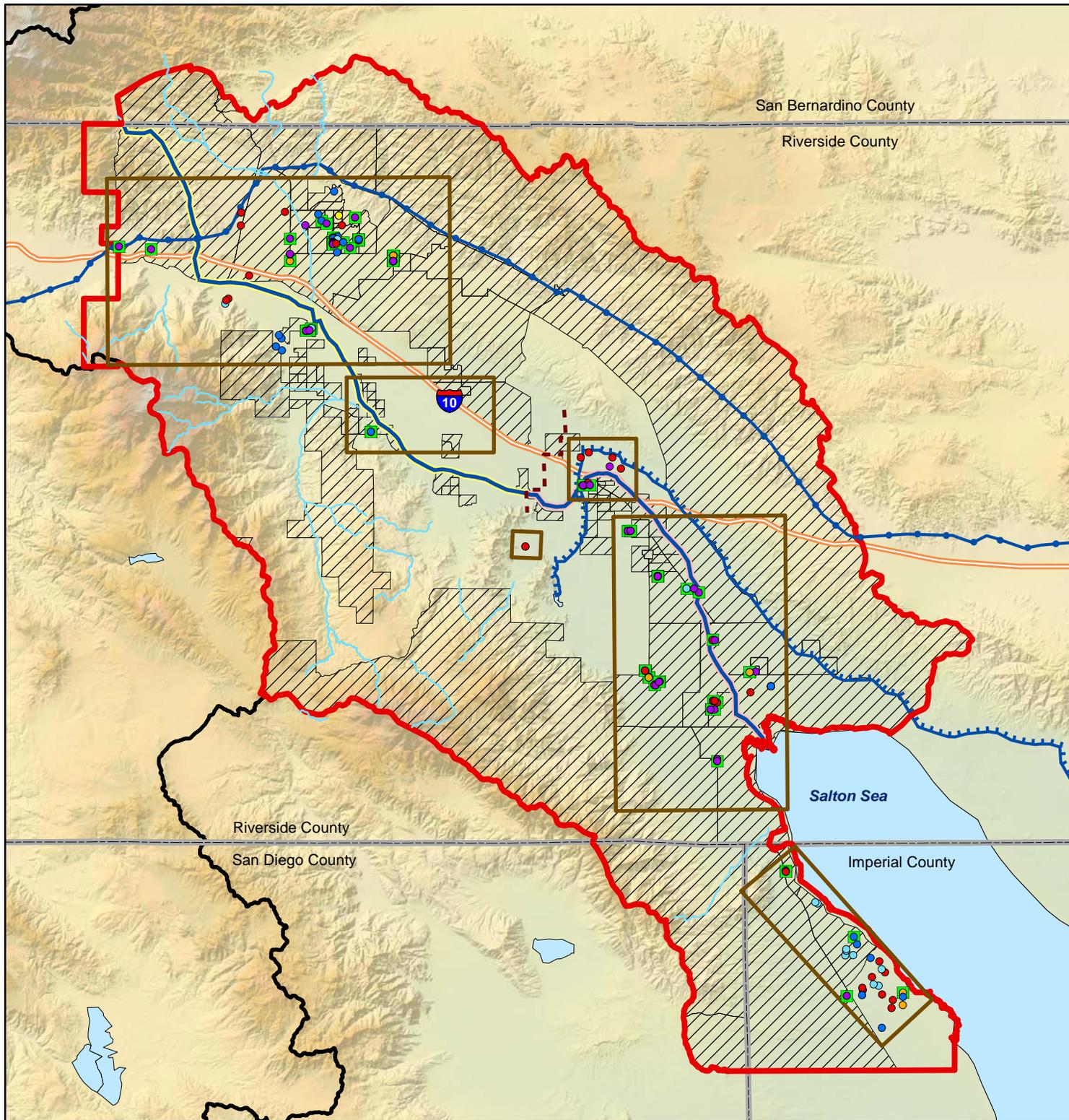
* Respondents' perception of tap water quality.

Source: 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.



Perceived Wastewater System Types

Figure 4-13



- Respondents who perceived that they have a wastewater problem
- Wastewater System Type***
- Sewer Line
- Septic System
- Cesspool
- Drainage Ditch/Lagoon
- Onsite, but type unknown
- Unknown
- - - Division between West and East Valley
- = Highways
- = Colorado River Aqueduct
- = Coachella and All American
- = Whitewater River Storm Water Channel
- = Coachella Valley Storm Water Channel
- = Water Bodies
- Coachella Valley IRWM Region
- Colorado River Funding Area
- Survey Area
- Disadvantaged Community (DAC)

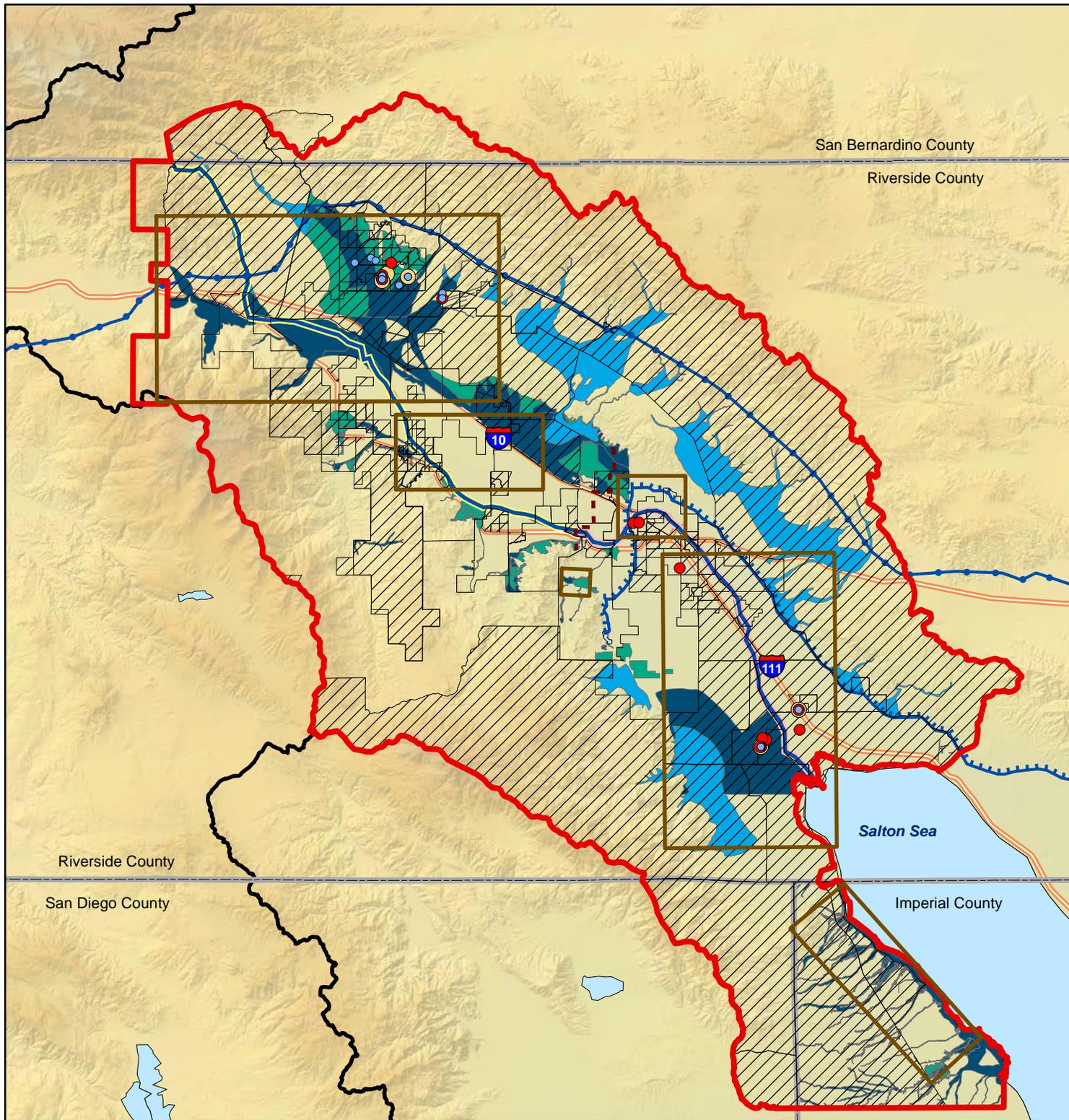
* Respondents' perception of the type of wastewater system they have.

Source: 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.



Perceived Flooding

Figure 4-14



- 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 West and East Valley
- Colorado River Aqueduct
- Coachella and All American
- Whitewater River Storm Water Channel
- Coachella Valley Storm Water Channel
- Highways
- Water Bodies
- Coachella Valley IRWM Region
- Colorado River Funding Area
- DWR Flood Awareness
- FEMA 100-year Flood Zone
- FEMA 500-year Flood Zone
- Survey Area
- Disadvantaged Community (DAC)

Source: FEMA Flood Zone Designations, 2012
DWR California's Flood Future Report, 2013





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, a number of 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*, 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 East 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 California Department of Water Resources (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 CVRWGM agencies. Those areas that contained wells exceeding water quality thresholds, were mapped as being economically disadvantaged, and were not located within a CVRWGM 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 4-15** 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 µg/L (average concentration was 237 µg/L). This finding for arsenic is consistent with concerns expressed by DAC and tribal stakeholders in the East Valley, and supports IRWM funding of the Short Term Arsenic Treatment (STAT) project (refer to *Section 4.1* above). Fluoride and nitrate had a considerably higher number of sample locations and on average were above the regulatory levels of 2 and 10 mg/L respectively. These levels were frequently found in DAC areas. Uranium was detected in some areas, especially in the West Valley, but the average concentration of 28.6 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 has recently



recommended a regulatory threshold of 10 $\mu\text{g/L}$, which indicates there may be portions of the Region that exceed future statewide regulatory limits for this constituent.

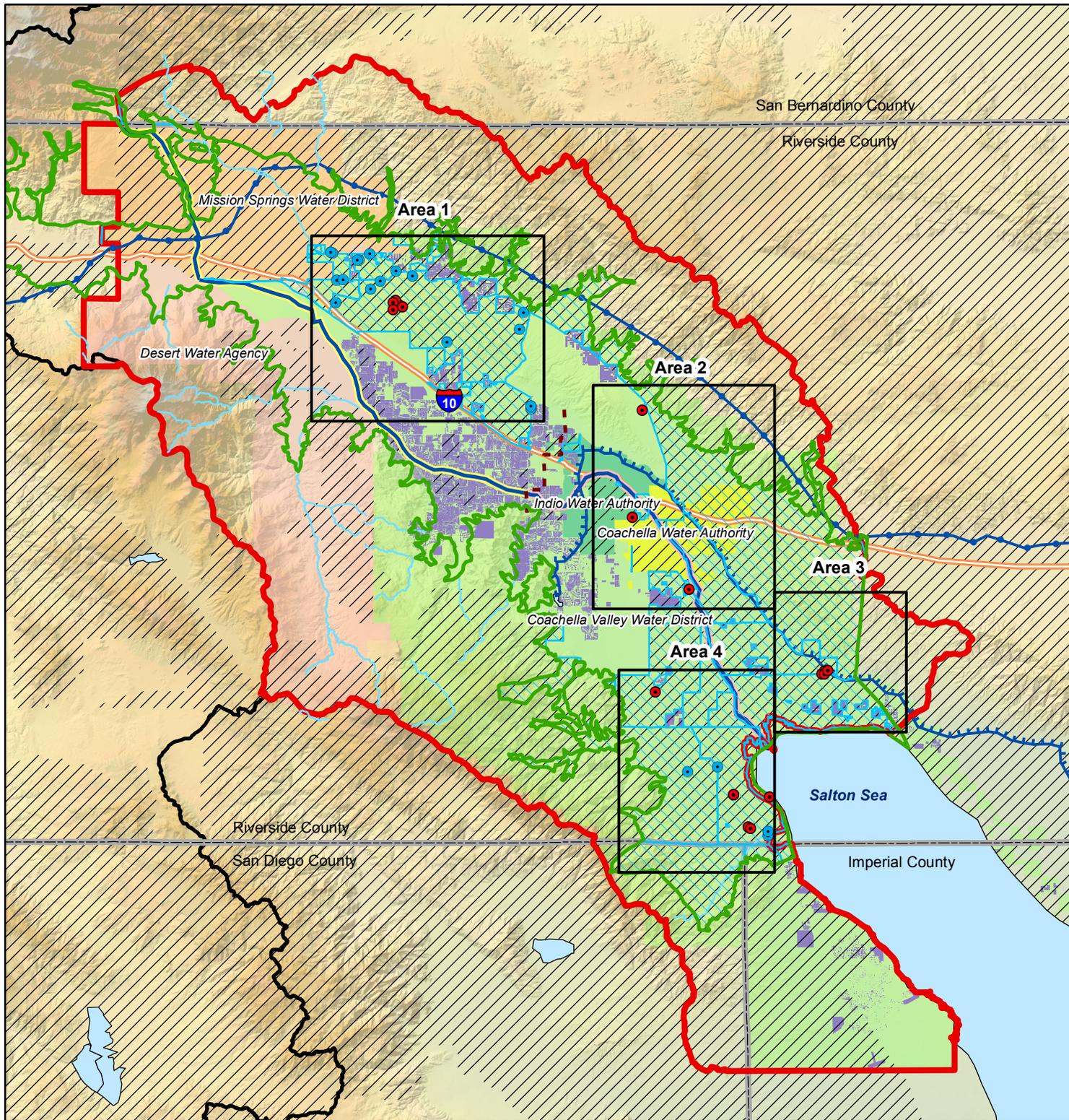
More than 20 treatment alternatives were evaluated for aforementioned constituents in the Areas of Concern. These treatment technologies were evaluated for effectiveness and economics in accordance with US Environmental Protection Agency (USEPA) best available technology assessment. The analysis indicated 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 Short Term Arsenic Treatment (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 4-15



- GAMA Wells Water Quality Issues
 - NWQMC Wells Exceeding Water Quality Standards
 - CVWD Water Parcels
 - DACs Served by GW Supply
 - Coachella Valley Groundwater Basin
 - Division between West and East Valley
 - Highways
 - Colorado River Aqueduct
 - Coachella and All American
 - Whitewater River Storm Water Channel
 - Coachella Valley Storm Water Channel
 - Water Bodies
 - Coachella Valley IRWM Region
 - Colorado River Funding Area
 - Disadvantaged Community (DAC)
- Water Agencies**
- Coachella Water Authority
 - Desert Water Agency
 - Indio Water Authority
 - Mission Springs Water District
 - Coachella Valley Water District

Source: 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.



File Name: Fig 4-15_Areas of Concern 01262014.mxd
 File Location: N:\Projects\0574-002 Coachella IRWM Plan Update
 \03_GIS\MXD\Figure Updates_Public Draft
 Date Updated: January 29, 2014
 Department: RMC Water & Environment



4.3.6 DAC Needs

During the outreach discussed in *Section 4.2* and *Section 4.3* 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*). Issues and needs of DACs are also included in *Chapter 3 Issues and Needs* (see *Section 3.1.8*), 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 tribe 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. As a result 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 in order to meet the needs of all Coachella Valley residents, including DACs. DAC and tribal groups in the East 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 East Valley, DACs may be relying upon groundwater from wells that are located 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 so as 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 East Valley may rely upon other wastewater disposal methods such as open lagoons, which can impart health and safety concerns to residents who may come into contact with the untreated wastewater. Some East 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 East Valley make sewer connection costs prohibitively expensive.

In the West Valley, particularly in the area around Desert Hot Springs, there are concerns that septic systems that percolate to the Desert Hot Springs Sub-basin pose a contamination threat to the hot water aquifer, which is also the basis for the area's economy. While portions of the West 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 East Valley. The Coachella Valley Stormwater Channel, 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 East 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 East 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 East 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 a number of important needs were raised that are not within the scope of IRWM 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 East 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 East 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 PUCDC for the STAT) have been successfully employed in the East 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 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

As described in *Section 4.1* above, during initial development of the 2010 IRWM Plan, DAC stakeholders, the Planning Partners, and the CVRWMP 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*):

- Drinking water quality concerns for those DACs who use water from private onsite wells, and especially those DACs in the East 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 East 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 ultimate 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 also 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 CVRWGMG meetings were reviewed and assessed by the technical team, the CVRWGMG, and the three non-profit partners. The technical team worked with DAC stakeholders (the three non-profit partners) and the CVRWGMG 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 or not 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 disadvantaged community?
- 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.	<p>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.</p> <p>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 parties. The program would articulate appropriate environmental conditions, preferred systems/vendors, installation recommendations, and operation protocols for onsite treatment.</p>
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	<p>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.</p> <p>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</p>

Project Concept	Background/Issue Statement	Project Description
	<p>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.</p>	<p>retrofit/rehabilitation techniques and recommendations, and maintenance protocols for septic systems.</p>
Flood Control	<p>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 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.</p>	<p>Extensive flood mapping is currently being conducted as part of the Coachella Valley 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.</p> <p>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.</p>

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 also posted on the CVRWMP 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 also 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 West Valley Workshop found that many DAC residents in the West 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 East 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 will require 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. It is anticipated that implementation via the non-profit partners will begin in late 2013 or early 2014 and will continue to be implemented through these groups into the future.

Project 2: Determining Connection Opportunities

This project involves detailed mapping to help locate municipal service connection opportunities. The idea for this project was developed as a result 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 East 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. In order 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* 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 CVRWGM 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 East 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 a number of 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 East Valley would be appropriate to target, because they have reduced permitting requirements and there are hundreds of Polanco Parks within the East

Valley, making future replication more feasible. There were a number of reported failing and overflowing septic systems in the West 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 East Valley, there is still an identified need for septic system rehabilitation in the West Valley. Ideally, the outreach materials produced through Project 1 (see *Section 4.4.3.1* above) will provide non-profit partners in the West 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 similar to 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*) 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 East 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 East 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 of these 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 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 pursue certification of CDPH-approved (NSF 61) systems for small-system wellhead treatment.



Coachella Valley Final Water Management Plan

September 2002



Coachella Valley Water District



COACHELLA VALLEY WATER MANAGEMENT PLAN

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Executive Summary

Lower Valley Demands

Lower Valley demand is projected to increase 17 percent from 444,700 acre-ft/yr in 1999 to 538,300 acre-ft/yr in 2035 (see Figure F) due to population growth and increased golf course use as well as some additional agricultural use.

Current Condition of Coachella Valley Groundwater Basin

Since the early part of this century, the Coachella Valley has been dependent on groundwater as a source of supply. The demand for groundwater has annually exceeded the limited natural recharge of the groundwater basin. The condition of a groundwater basin in which the outflows (demands) exceed the inflows (supplies) to the groundwater basin is called “*overdraft*”.

The State of California Department of Water Resources Bulletin 160-93 describes *overdraft* as follows:

“Where the groundwater extraction is in excess of inflow to the groundwater basin over a period of time, the difference provides an estimate of overdraft. Such a period of time must be long enough to produce a record that, when averaged, approximates the long-term average hydrologic conditions for the basin.”

Bulletin 118-80 defines “overdraft as the condition of a groundwater basin where the amount of water extracted exceeds the amount of groundwater recharging the basin over a period of time.” It also defines “critical condition of overdraft” as water management practices that “would probably result in significant adverse overdraft-related environmental, social, or economic effect.” Water quality degradation and land subsidence are given examples of two such adverse effects.

This overdraft condition or “mining” of the groundwater has caused groundwater levels to decrease more than 60 feet in portions of the Lower Valley and raised concerns about water quality degradation and land subsidence. Groundwater levels in the Upper Valley have also decreased substantially, except in the areas near the Whitewater Spreading Facility where artificial recharge has successfully raised water levels.

Continued overdraft will have serious consequences for the Coachella Valley. The immediate and direct effect will be increased groundwater pumping costs for all water users. Wells will have to be deepened, larger pumps will have to be installed, and energy costs will increase as the pump lifts increase. Eventually, the need for deeper wells and larger pumps will have an adverse impact on agriculture and will increase the cost of water for municipalities, resorts, homes, and businesses. Continued decline of groundwater levels could result in a substantial and possibly irreversible degradation of water quality in the groundwater basin.

Continued overdraft also increases the possibility of land subsidence within the Valley. As groundwater is removed, the dewatered soil begins to compress from the weight of the ground above, causing subsidence. Subsidence can cause ground fissures and damage to buildings, homes, sidewalks, streets, and buried pipelines - all of the structures that make the Valley livable.

Recent studies indicate that as much as 7 centimeters of subsidence occurred in the Palm Desert area between 1996 and 1998.

The calculation of an annual value of overdraft that accounts for all of the components of overdraft is difficult. One method of estimating the overdraft is to look at the net annual change in freshwater storage in the basin. Change in freshwater storage is the difference between the inflows and outflows of the basin, excluding the inflows of poor-quality water (irrigation return flows and Salton Sea water) which are induced by the overdraft. By excluding these inflows, a more accurate approximation of actual annual overdraft is possible. In 1999, the change in freshwater storage in the Coachella Valley is estimated to be 136,700 acre-ft/yr. The cumulative change in freshwater storage from 1936 to 1999 is estimated to be nearly 4.8 million acre-ft i.e., 4.8 million acre-ft of freshwater was withdrawn from the basin and not replaced. Using freshwater storage as an indicator of overdraft does not account for all aspects of overdraft such as subsidence and other water quality, environmental, social, and economic effects.

Action Required by Coachella Valley Water District

It is clear that the continued decline of groundwater levels and overdraft is unacceptable. The District is charged with providing a reliable, safe water supply to its area of the Valley now and in the future. In order to fulfill its obligations to Valley residents, the District must take action to prevent continuing decline of groundwater levels and degradation of water quality. A comprehensive water management plan will guide the District in its efforts to prevent groundwater level decline, protect water quality, prevent subsidence, and expand its water conservation programs.

WATER MANAGEMENT PLAN PROCESS

To meet its responsibilities for ensuring that there are adequate water supplies in the future, the District initiated a planning process in the early 1990s. The process initially addressed the Lower Valley, but was expanded to include the entire Coachella Valley in 1995. This Plan is the product of that process.

Goals and Objectives

The goal of the Water Management Plan is to assure adequate quantities of safe, high-quality water at the lowest cost to Coachella Valley water users. To meet this goal, four objectives have been identified:

1. eliminate groundwater overdraft and its associated adverse impacts, including:
 - groundwater storage reductions,
 - declining groundwater levels,
 - land subsidence, and
 - water quality degradation,

**COACHELLA VALLEY WATER MANAGEMENT PLAN
2010 UPDATE**

**Administrative Draft
Subsequent Program Environmental Impact Report
SCH No. 2007091099**

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schools within a half-mile of proposed sites will be notified so that detour routes for emergency responses can be planned for the construction period.

USP-2: Facilities siting, especially adjacent to schools, will consider access and will schedule construction scheduling outside of school sessions. Project specifications shall require that schools will also be notified of construction location, schedule and duration well in advance. Prior to the construction of any facilities, the schools within a half-mile of proposed sites will be notified so that detour routes can be planned for the construction period.

Therefore, the impact on public services and utilities would be less than significant with mitigation incorporated.

8.5 ENERGY RESOURCES AND CONSERVATION

CEQA Guidelines, Appendix F, require that EIRs include a discussion of the potential energy impacts of proposed projects, with emphasis on avoiding or reducing inefficient, wasteful and unnecessary consumption of energy.

8.5.1 Environmental Setting

8.5.1.1 Electricity

IID supplies electricity to the IID service area in Imperial County and to the Coachella Valley area east of Washington Street and north of I-10, which includes Indio, Coachella, La Quinta, 1000 Palms, Sky Valley, Indio Hills, Thermal and Mecca. Over 65 percent of IID’s supply is generated locally using hydroelectric facilities, (geothermal), steam generation facilities, as well as several diesel and natural gas turbines. IID maintains an emergency generation facility in Coachella (IID, 2010a). USEPA reported for 2007 that the SCE and IID fuel mixes were as tabulated below (**Table 8-5**) (USEPA, 2007).

**Table 8-5
Fuel Mix (Power Content Label) Comparison for SCE and IID**

Fuel Source	SCE 2009 (% of total) ^a	IID Projected 2010 (% of total) ^b	2008 CA Power Mix (% of total) ^c
Non-hydro Renewables	15	0.45	1.3
Hydroelectric	6	17.75	18.5
Nuclear	18	4.63	4.6
Natural Gas	51	47.46	41.9
Coal	10	29.48	33.7
Oil and Other	<1.0	0.23	0.0

Source: a = SCE, 2009. b = IID, 2010; c= CEC, 2008.

SCE supplies energy to most of the West Valley. SCE uses a variety of sources to produce electricity: natural gas, hydroelectric plants, nuclear energy, and renewable resources, like solar and wind. Colmac Energy Division operates a 47 megawatt (MW) agricultural waste-to-energy plant on Cabazon Tribal land near Mecca. The energy is sold to SCE (Sacred Power Corporation, 2007).

Section 8 – Human or Built Environment

The area bordering San Geronio, Desert Hot Springs, Cathedral City and North Palm Springs is a designated Wind Energy Policy Area (Riverside County, 2008b). The wind farm contains more than 4,000 separate windmills operated by a number of private firms. The great majority of the energy is sold to SCE, with lesser amounts to the Los Angeles Department of Water and Power and to the City of San Diego.

Geothermal energy is also produced in the study area from the presence of geothermal groundwaters that border and underlie the Salton Sea. An area extending north of Mecca, west of Oasis and east 12 miles from the Salton Sea has geothermal groundwaters, wells and springs. Development of geothermal energy production is underway. In addition, fish farms and greenhouses have located here to take advantage of the warm groundwater. Geothermal groundwaters also exist in the area surrounding Desert Hot Springs in the West Valley.

The SWP is the largest single user of electrical energy in the State; it accounts for 2 to 3 percent of all the electricity consumed in California. The SWP uses an average of 5,000 gigawatt-hours (GWh) per year. The lift of SWP water to the top of the Tehachapi Mountains for delivery to Southern California requires over 2,200 kilowatt-hours per acre-foot (kWh/AF) of water pumped. Delivery of SWP Exchange water to the Coachella Valley requires 3,143 kWh/AF for the SWP plus 2000 kWh/AF of pumping energy to bring exchanged Colorado River water via the CRA to the turnout at Whitewater. Delivery of Colorado River water via the Coachella Canal also requires approximately 2,000 kWh/AF (**Table 8-6**) (CEC, 2010).

The SWP is pursuing a number of energy-efficient projects, including state of the art engineering to make SWP hydroelectric units highly efficient in pumping and generating modes, and is evaluating the feasibility of additional energy efficiency upgrades at the Edmonston Pumping Plant, which would be implemented between 2013 and 2020. The Hyatt facility units were recently refurbished and increased their efficiency from 87-91 percent to 93-95 percent. The decreased power use will be 48,500 MWh per year or 20 MW (equivalent to a 100-acre solar farm) (Water/Energy Sustainability Summit, 2010).

8.5.1.2 Natural Gas

The SCGC supplies natural gas to all consumers within the study area. The main natural gas transmission line runs eastward almost parallel to I-10 between San Geronio and Thousand Palms. From Thousand Palms, the gas line continues eastward at about 3 to 5 miles north of I-10. The gas line meets I-10 and runs parallel to it again at Mecca Hills.

Table 8-6
Existing and Projected Energy Use for the Proposed Project
(kWh/yr unless noted)

Project Component	Avg. Usage (kWh/AF)	2009 Existing Conditions	2020		2045	
			Project	Difference from 2009	Project	Difference from 2009
Project Energy						
West Valley Reclamation	340	4,481,000	6,883,000	2,402,000	9,339,000	4,858,000
West Valley GCs Canal Water (MVP)	497	1,515,000	12,161,000	10,646,000	19,240,000	17,725,000
East Valley GCs Canal Water	0	0	0	0	0	0
East Valley Agr. Canal Water	0	0	0	0	0	0
East Valley Agr. Canal Water Oasis System	338	0	0	0	7,921,000	7,921,000
Levy Facility (Dike 4) Recharge - Pumping	220	7,150,000	8,800,000	1,650,000	8,800,000	1,650,000
Martinez Canyon Recharge	350	1,103,000	1,400,000	297,000	7,000,000	5,897,000
Indio Recharge	0	0	0	0	0	0
East Valley Municipal Canal Water - Treated	410	0	12,300,000	12,300,000	36,900,000	36,900,000
East Valley Municipal Canal Water - Untreated	270	554,000	3,970,000	3,416,000	21,238,000	20,684,000
East Valley Recycled Water	160	62,000	995,000	933,000	5,042,000	4,980,000
Agricultural Drainage Desalination	1,190	0	10,908,000	10,908,000	101,150,000	101,150,000
Total Project Energy		14,865,000	57,417,000	42,552,000	216,630,000	201,765,000
Groundwater Pumping						
West Valley	varies	126,907,000	102,438,000	-24,469,000	102,414,000	-24,493,000
East Valley	varies	69,358,000	36,917,000	-32,441,000	26,194,000	-43,164,000
Total Groundwater Pumping		196,265,000	139,355,000	-56,910,000	128,608,000	-67,657,000
Total Coachella Valley		211,130,000	196,772,000	-14,358,000	345,238,000	134,108,000
Water Importation						
SWP Exchange	3,143	179,226,000	222,803,000	43,577,000	257,963,000	78,737,000
Colorado River & Desal. Drain Exchange	2,000	0	43,208,000	43,208,000	59,878,000	59,878,000
Total Imported Water		179,226,000	266,011,000	86,785,000	317,841,000	138,613,000
Total		390,356,000	462,783,000	72,427,000	663,079,000	272,721,000
Percent Change				18.6%		69.9%

GC = golf course; MVP = Mid-Valley Pipeline; SWP = State Water Project; kWh/AF = kilowatt-hours per acre-foot; kWh/yr = kilowatt-hours per year.

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8.5.1.3 Energy Use at CVWD

Energy is used for well pumping; water delivery; agricultural, golf course and resort irrigation; recycled water pumping; and pumping of imported waters into the study area.

CVWD promotes energy conservation as well as water conservation. CVWD has received rebates from IID for replacement/upgrade of inefficient pumps/motors. IID Energy offers incentives to its commercial customers to encourage energy efficiency, primarily through its Energy Rewards Rebate Program. These rebates are offered for qualifying energy efficient appliances and building improvements (DSIRE, 2010).

CVWD is also taking advantage of the SCE Time of Use-Base Interruptible Program (TOU-BIP) rates and curtailment programs. The TOU-BIP is an interruptible rate designed for customers whose monthly Maximum Demand reaches or exceeds 200 kilowatts (kW) and who commit to curtail at least 15 percent of their Maximum Demand, at least 100 kW per Period of Interruption (SCE, 2010).

The District's new headquarters, under construction at this writing, will meet the LEED (Leadership in Energy and Environmental Design) Green Building Rating System™ Gold standard criteria, which promote “energy savings, water efficiency, CO₂ emissions reduction, improved indoor environmental quality, and stewardship of resources and sensitivity to their impacts” (U.S. Green Building Council, 2010). In addition, solar panels will be installed on the carport shade structures that will generate up to 375 kW.

CVWD provides diesel backup power at its Water Reclamation Plants (WRPs), lift stations, office buildings and more than half of its wells to maintain operation in an emergency.

CVWD uses natural gas for its buildings, including the Coachella headquarters, Palm Desert offices, and at the WRP-10 control building. CVWD also uses natural gas for water boilers; for heating, ventilating and air conditioning (HVAC) systems; and for hot water tanks for the hot water spigots throughout the buildings.

8.5.2 Significance Criteria

State CEQA Guidelines, Appendix G, does not present significance criteria related to energy conservation. CEQA Guidelines, Appendix F addresses energy conservation, impacts and mitigation in EIRs, but identifies no specific significance criteria. Since the purpose of the analysis is to “avoid or reduce inefficient, wasteful and unnecessary consumption of energy,” the CVWD would consider a Proposed Project energy impact to be significant if it:

- resulted in the inefficient, wasteful and unnecessary consumption of energy, or
- had significant effects on local and regional energy supplies and on requirements for additional capacity.

8.5.3 Impacts

The 2002 PEIR stated that the Proposed Project was expected to change energy use within and outside the Coachella Valley. Total energy usage was expected to increase due to pumping and treatment. Baseline energy usage for water and wastewater operations (1999 conditions) totaled 541,664,000 kilowatts per year (kWh/yr). With implementation of the 2002 WMP, energy use was projected to increase to 648,443,000 kWh/yr by 2015, an increase of 106,779,000 kWh/yr, and to 700,824,000 kWh/yr by 2035, an increase of 159,160,000 kWh/yr over 1999 conditions.

Implementation of the present Proposed Project is similarly expected to change energy use both within and outside the Coachella Valley. The overall Proposed Project energy demand is projected to increase from 390,356,000 kWh/yr in 2009 to approximately 462,783,000 kWh/yr by 2020, an increase of 72,427,000 kWh/yr or 18.6 percent, and to approximately 663,079,000 kWh/yr by 2045, an increase of approximately 272,723,000 kWh/yr or 69.9 percent over 2009 levels.

Energy use is discussed in terms of energy to operate in-Valley Proposed Project elements and reduction in pumping energy with reduction in overdraft and also in terms of energy to import water to the Valley from the SWP and CRA.

8.5.3.1 In Valley Energy Use

Under the Proposed Project, energy usage within the Valley for facilities is expected to increase due to increased water conveyance to and from treatment plants, tanks, pumping stations and to recharge basins, but overwhelmingly for desalination treatment. At the same time, energy usage for groundwater pumping is expected to decrease under the Proposed Project with reduced pump lifts as groundwater levels rise with the reduction in overdraft.

Existing and projected future energy usage for groundwater pumping has been estimated based upon the following assumptions:

- Total pump lift is based on the sum of depth to water, drawdown and pump discharge head (pressure above ground).
- Depth to water is computed from groundwater model results as the difference between the ground surface and the groundwater table elevations.
- Drawdown is also computed from groundwater model results using estimates of specific capacity and assuming continuous pumping.
- Discharge heads are assumed to average 60 pounds per square inch (psi) for agricultural uses, 70 psi for urban uses and 90 psi for golf courses. Regional weighted averages are computed using the proportion of pumping for the various uses. Thus discharge heads vary over time as usage changes.
- The assumed average wire-to-water energy efficiency is 63 percent (the overall or "wire-to-water" efficiency of a pumping plant is the ratio of work done by a pumping plant to the energy put into the pump, expressed as a percentage).

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Table 8-6 summarizes estimated energy requirements of the various components of the Proposed Project. The proposed treatment facilities and pumping stations required to deliver water would be electrically powered, possibly with standby diesel generators in case of outages. The amount of energy required will depend on the specific design of the facilities. Energy will also be required to convey imported water to the study area from the SWP over the Tehachapi Mountains for Metropolitan, as Exchange water in the Metropolitan CRA, and from the Colorado River via the Coachella Canal. The additional energy usage presented in **Table 8-6** is based on the concepts developed for the Proposed Project.

Based on this analysis, the existing (2009) electrical energy demand for water management in the Coachella Valley is approximately 211,130,000 kWh/yr of which groundwater pumping is approximately 196,265,000 kWh/yr, or 93 percent. With implementation of the Proposed Project (water conservation and increased groundwater levels as overdraft is addressed), electrical energy consumption for groundwater pumping is projected to decrease to approximately 139,355,000 kWh/yr by 2020 and to 128,608,000 kWh/yr by 2045, a saving of 56,910,000 kWh/yr (29 percent of pumping energy) by 2020 and 67,657,000 kWh/yr (35 percent of pumping energy) by 2045, compared to 2009 conditions. This is a beneficial effect of the Proposed Project. Total Coachella Valley energy use is projected to decrease from 211,130,000 kWh/yr in 2009 to 196,772,000 kWh/yr by 2020 and then to increase to 345,238,000 kWh/yr by 2045 with implementation of maximum desalination. At the same time, energy use for groundwater pumping would decrease from 196,265,000 kWh/yr to 128,608,000 kWh/yr of which 102,414,000 kWh/yr would be in the West Valley supplied by SCE, and 26,194,000 kWh/yr would be in the East Valley supplied by IID. The net increase in Valley energy use from 2009 to 2045 would be approximately 134,108,000 kWh/yr by 2045.

Operation of Proposed Project components within the Valley represents 52 percent of the total overall anticipated increase in energy use from Proposed Project implementation (as opposed to energy to importation of water from outside the Valley). The projections also reflect that the greatest increase in energy use would occur after 2020, as Proposed Project elements with the highest energy requirements are implemented. These elements are agricultural drainage desalination, treatment of Canal water, treatment of recycled water, and pumping to the completed MVP distribution system for golf course irrigation (**Table 8-6**). Desalination of agricultural drainage would require 101,150,000 kWh/yr.

Energy for WMP projects in the Valley would be supplied by SCE and IID from their own facilities and from the grid. In general, SCE would supply energy for proposed West Valley facilities and IID would supply East Valley facilities. Since the majority of the Proposed Project facilities would be in the East Valley, more of the additional energy would be required from IID. The Proposed Project facilities would contribute to base period demand, and some would contribute to peak demand as well (e.g., pumping for MVP, East Valley Oasis Canal system, and Canal water treatment). Energy for water importation on the Colorado River and SWP Exchange is and would be supplied by a complex of entities.

The proposed in-Valley elements would minimize energy use, avoiding the inefficient, wasteful and unnecessary consumption of energy. The amount of energy required for powering these

facilities, 7 MW by 2045, would have less than significant effects on local and regional energy supplies and on requirements for additional capacity. Total energy supplied by SCE is 5,000 MW (SCE, 2010), and by IID is 1100 MW (IID, 2011). Therefore, a demand of 7 MW is considered to have a less than significant potential impact on local and regional energy supplies and would not require the development of new supplies.

Therefore the energy impacts of in-Valley WMP elements are considered to be less than significant. Mitigation Measures to further reduce these effects are discussed below.

8.5.3.2 Water Importation Energy Use

Water importation to the Valley from the SWP requires energy to pump CVWD and DWA's water over the Tehachapi Mountains into southern California (where Metropolitan takes it) and also energy to pump the SWP Exchange water from the Colorado River to the Whitewater Turnout on the CRA. Energy is also required to move Colorado River water from the All-American Canal into the Coachella Canal, thence into the study area. In 2009, water importation to the Coachella Valley required approximately 179,226,000 kWh/yr. However, energy use in 2009 for water importation on the SWP was lower than average because of ongoing drought and Delta issues – i.e., the amount of water imported was less than usual. Therefore, the projected 2020 and 2045 energy demand increments for SWP Exchange water may be somewhat lower than shown in **Table 8-6**.

Total 2009 energy use estimated for Coachella Valley water importation is approximately 179,226,000 kWh/yr. Under the Proposed Project, water importation will substantially increase total Proposed Project energy use. Energy use for water importation will increase from approximately 179,226,000 kWh/yr to 266,011,000 kWh/yr by 2020 and to approximately 317,841,000 kWh/yr by 2045, increments of 86,785,000 kWh/yr and 138,613,000 kWh/yr, respectively. Additional energy for water importation is estimated to be 16 MW of electricity on the SWP and CRA by 2045.

The SWP is actively pursuing measures to improve energy efficiency of major equipment, is procuring renewable energy through a progressive procurement plan and is using best management practices for its existing facilities to minimize energy use. Metropolitan and suppliers of energy to the CRA, particularly SCE, are similarly pursuing measures to reduce energy consumption and increase renewables.

Energy for water importation to the Coachella Valley, which can be minimized but not eliminated, would not result in the inefficient, wasteful and unnecessary consumption of energy. The anticipated energy requirement for water importation by 2045 under the WMP is estimated to be 16 MW, which is a minor fraction of total energy provided by the power suppliers. Annual net energy use on the SWP is 5.1 GWh (California DWR, 2011) and energy use on the CRA is 325 to 2600 GWh depending on the number of pumps operating (Metropolitan, 2006). Therefore, the energy required for the Proposed Project is considered to be less than significant.

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8.5.3.3 Meeting Projected Demands

A recent California Energy Commission (CEC) report projects energy use by supplier and sector from 2010 through 2020. For SCE, projected energy demand is projected to range from approximately 109 to 121 GWh/yr between 2010 and 2020. For IID, the projected increase in energy consumption from 2010 to 2020 is 20 percent, from 4,065 GWh in 2010 to 4,888 GWh in 2020 (CEC, 2009). Long term projected energy demands for the two entities service areas are not available.

Resources plans of these entities to meet long-term projected energy demands also are not yet available. In 2010, IID completed an Integrated Resource Plan for the next 4 years, which states that “beginning in 2012, the District is short significant amounts of capacity and energy with summer capacity deficits exceeding 340 MW” (IID, 2010b). In 2005, SCE submitted to the California Public Utilities Commission (CPUC) Energy Division updates to the SCE 2004 Long Term Procurement Plan (LTPP) for the next 10 years (through 2014). Through the LTPP process, the CPUC approves plans for utilities to purchase energy; establishes policies and utility cost recovery for energy purchases; ensures that the utilities maintain a set amount of energy above what they estimate they will need to serve their customers (called a reserve margin); and implements a long-term energy planning process (CPUC, 2011). SCE has also had difficulty in meeting summer peak demand in its service area.

Proposed Project implementation between 2010 and 2045 will increase demand upon existing sources of energy for construction and more so for operation of proposed facilities. The estimated increase in power required is approximately 272,721,000 kWh/year by 2045 (about 23 MW); of which approximately 139 million kWh/yr (approximately 16 MW) would be for SWP and CRA pumping outside the Valley. This amount is considered to be less than significant, as it would represent a minor fraction of existing increased electricity demand for all uses in the study area.

To put this in perspective, one impetus for the Proposed Project, in addition to addressing overdraft, is to accommodate study area growth and development projected and approved by others. Based on an average of 7,100 kWh/yr per household in the Coachella Valley (KEMA, Inc., 2010) and an estimated 219,075 additional households in the Valley by 2045 (SCAG, 2008), additional energy required to serve projected residential and commercial growth in the study area by 2045 would be approximately 1.6 billion kWh/yr (178 MW) by 2045. Conserving and minimizing energy required for projected growth the Coachella Valley is outside the control of CVWD. The impact of projected growth on energy resources and need for development of additional supplies may be significant, but is not within the control of CVWD. See also the cumulative impact analysis in **Section 9 – Related Projects and Cumulative Impacts**.

8.5.3.4 Potential Sources of Energy

The mix of energy sources for SCE and IID, tabulated above (**Table 8-5**), would be substantially different by 2020 and by 2045, however. On April 12, 2011, California Governor Jerry Brown signed SB X1 2, requiring public and private utilities to obtain 33 percent of their electricity from renewable energy sources by 2020. The new renewable power standard (RPS) established by the bill is anticipated to create new jobs while reducing air pollution and GHG emissions.

Therefore, the future fuel mixes of IID and SCE will change in the future. As shown in **Table 8-5** above, in 2009 SCE derived 21 percent of its energy from hydroelectric power generation and non-hydroelectric renewable energy sources; IID derived 19.8 percent of its energy from these sources.

IID is developing solar and geothermal energy in facilities near the southeastern shore of the Salton Sea (IID, 2010a). Wind energy is being developed in and north of the Coachella Valley with sales to SCE. Both agencies also are investigating other renewable sources, not presented in detail here.

With respect to natural gas, the CEC reports that gas is an increasingly important fuel since more of the state's power plants rely on natural gas. While successful conservation and efficiency programs and renewable sources of electricity should slow the future demand for natural gas, competition for the state's imported supply is increasing.

Imported liquefied natural gas (LNG) is expected to supplement conventional supply sources. Thirteen new LNG terminals are proposed for the West Coast of the U.S. but none have been approved in California or Oregon at this time. Approximately half of the LNG from the new Sempra terminal located between Rosarito and Ensenada in Baja California, which began operation in 2008, would be available to California. A shortage of natural supplies to California is not currently predicted, however (CEC, 2011).

8.5.3.5 Meeting the Proposed Project Energy Supply and Demand

The estimated amount of future energy required for the Proposed Project is based on growth assumptions adopted by SCAG; which will determine, for example, how much if any desalination will be implemented after 2020. Actual energy requirements and sources will emerge over time, as growth does or does not occur, and at what rate. If growth does not occur or occurs at a lower rate than currently predicted, the magnitude of Proposed Project elements and their energy requirements would be similarly reduced.

Valley wide, projected city and county populations and land uses will result in substantial increases in electricity and natural gas usage. CVWD has no control over the demand for energy to serve development. Impacts of growth on energy use also will be potentially significant, but can and should be mitigated by others.

In any case, it is assumed for the WMP that both SCE and IID are planning for long-term growth and associated infrastructure and would be able to supply the Proposed Project elements as they are implemented in the future. CVWD will confer with both agencies on their long term projected WMP energy needs. A total future need of 23 MW is not considered to be outside the range of existing planning. Nevertheless, Proposed Project facilities will be designed to minimize energy consumption in construction and operation and will therefore avoid the wasteful, inefficient and unnecessary consumption of energy. Energy demand can be minimized or reduced, but not avoided or eliminated.

CVWD may implement alternative sources of energy for its own long-term projects (for example, supplying a portion of the desalination by solar or other renewable power), which

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potentially could reduce the demand for energy supplied by SCE or IID. A solar energy facility for desalination would be analyzed in a separate feasibility study and second tier CEQA document. For example, the Tribal Energy and Environmental Information Clearinghouse estimates that a 12 MW solar facility could require approximately 50 to 150 acres of land, depending on the solar technology used (TEEIC, 2011).

In conclusion, the magnitude of energy demand for the Proposed Project is largely a function of population growth. If the population growth does not materialize, then energy usage for the WMP would not need to increase. The Proposed Project impact on long-term energy resources of an additional 23 MW with full implementation of Project elements and with projected growth, even in the absence of long-term plans for resource development by SCE, IID or other suppliers, is considered to be less than significant because it would be a small fraction of the total electricity demand anticipated in the study area for all uses. Mitigation measures to further reduce energy usage are presented below.

8.5.4 Mitigation Measures

Potential energy mitigation measures are presented in State CEQA Guidelines, Appendix F Energy Conservation. Based on that information, the following measures are proposed to further decrease energy usage associated with the Proposed Project:

EN-1: The siting, orientation and design of water and wastewater facilities shall minimize energy consumption, including transportation energy, in compliance with CalGreen and the 2010 Uniform Building Code 2010.

EN-2: Energy conservation, water conservation and solid waste reduction measures shall be incorporated into the design of WMP elements in compliance with CalGreen and the 2010 Uniform Building Code 2010.

EN-3: Operations of WMP elements shall include some or all of the following, as applicable, as energy minimization measures:

- periodic energy audits,
- system modifications to reduce energy use in response to audits, including scheduling to use off-peak power,
- use of low energy demand equipment,
- compliance with LEED certification standards for new structures, and
- evaluation and incorporation of emerging and innovative energy conservation measures.

EN-4: CVWD will continue to develop and use alternative fuels for its own operations, as opportunities arise.

EN-5: CVWD will coordinate with IID and SCE on anticipated energy needs for CVWD operations.