Section 1 | Introduction

This Integrated Regional Water Management Plan (IRWM Plan)[1] defines a clear vision and direction for the sustainable management of water resources in the Antelope Valley Region (Region) through 2035. This version of the Plan includes 2013 updates to the 2007 version, and it complies with all requirements of the 2012 IRWM Grant Program Guidelines-IRWM Plan Standards.

Although the Antelope Valley IRWM Plan contains a viable action plan to provide a wide range of crucial water-related services necessary to support the well-being of people living in the Antelope Valley Region, this Plan is a planning and feasibility study only and no implementation or any project is being approved or required through its adoption. Implementation of this IRWM Plan will require further discretionary approvals either individually or jointly by the stakeholder group members. The IRWM Plan identifies existing key water-related challenges being faced by the residents of the Antelope Valley Region, along with projections of how these challenges will change by 2035. In response to current and expected challenges, this IRWM Plan provides a thorough inventory of possible actions to address the challenges, along with estimated costs and benefits of implementing each action. This IRWM Plan also documents an extensive collaborative process that led to the selection of a robust combination of actions that may be implemented cooperatively by the stakeholders in the Antelope Valley Region.

[1] All references to "IRWM Plan" in this document indicate the 2013 updated version.

Before the original IRWM Plan was adopted in 2007, individual water purveyors and users had been actively studying the effects of accelerated development of the Antelope Valley Region and were attempting to identify appropriate actions to address the increased need for water services. At the time, the acceleration of industrial and residential activity had stimulated demand for both more water supply and higher quality water. Attempts by individual agencies to meet the growing challenges had been frequently criticized and the atmosphere was not conducive to collaborative partnerships. Water managers and stakeholders in the Antelope Valley Region began to recognize that some of the challenges being faced by residents could not be addressed using a single-agency or single-purpose perspective.

These entities agreed that water resource needs in the Antelope Valley Region are highly interconnected and require a broad and integrated perspective in order to provide efficient and effective services.

The Stakeholders discuss funding opportunities from the California Department of Water Resources.

Acknowledging the need for a more comprehensive view, proactive stakeholders in the Antelope Valley Region (including agencies with an interest in water and other resource management) began meeting in May 2006 to improve communication and explore opportunities to leverage their resources. As a result, eleven public agencies signed a memorandum of understanding (MOU) to form the Antelope Valley Regional Water Management Group (RWMG). The MOU was amended in April 2009 to establish the organization and responsibilities of the IRWM governance structure, including the RWMG, the Advisory Team, and the Stakeholder Group. Copies of these two documents are included in Appendix A and may be found on the www.avwaterplan.org website.

During the early (pre-2007) discussions, the stakeholders decided to develop a plan with a regional focus designed to identify a set of integrated solutions addressing goals for water supply, water quality, flood management, environmental resource management including habitat improvement, and increased recreational park space and open space. These topics were re-examined during the 2013 Plan Updates, and climate change impacts were added to the discussion.

This planning process acknowledges that a separate process called adjudication, related to groundwater management, is underway. The members of the RWMG have agreed that since the IRWM Plan and the adjudication are focused on different (but related) aspects of water management, they can and should proceed in parallel. This IRWM Plan contains information to help take action to meet shared objectives for long-term water management for the entire Region. The results of the adjudication (which are still pending at the time of the 2013 Plan update) will help provide important clarity and certainty for groundwater users about how the groundwater resources will be utilized and managed. At the same time, other important water management actions can and should be taken without waiting for a final adjudicated solution. Members of the RWMG agree

A variety of flora may be found in the Antelope Valley climate.

that no information developed for the purposes of the IRWM Plan should be interpreted to interfere in any way with the adjudication process. The data provided in this report are not prepared in a manner suitable to answer the questions being addressed in the adjudication.

This IRWM Plan creates opportunities for new partnerships and collaboration and documents a collective vision to meet water resource needs and improve the ecological health of the Antelope Valley Region. The quantitative planning targets provide interested stakeholders the means to measure progress and account for tangible community benefits. This updated IRWM Plan describes a specific and financially feasible set of actions necessary to manage the precious water resources within this Antelope Valley Region through 2035.

1.1 Background

The Antelope Valley Region is a triangular-shaped, topographically closed basin bordered on the southwest by the San Gabriel Mountains, on the northwest by the Tehachapi Mountains, and on the east by a series of hills and buttes that generally follow the Los Angeles/San Bernardino County line (Figure 1-1, Antelope Valley IRWM Plan Region). The Antelope Valley Region encompasses approximately 2,400 square miles in northern Los Angeles County, southern Kern County, and western San Bernardino County, and it covers the majority of the service area of the Antelope Valley-East Kern Water Agency (AVEK), the largest water wholesaler in the Antelope Valley Region. Major communities within the Antelope Valley Region include Boron, California City, Edwards Air Force Base (EAFB), Lancaster, Mojave, Palmdale and Rosamond.

On November 23, 2009, the Antelope Valley Region successfully completed the Region Acceptance Process (RAP) with the Department of Water Resources (DWR). The RAP was the first step in becoming eligible for Proposition 84 grant funding and helps to define certain aspects of the Region. Specifically, the RAP provides documentation of contact information, governing structure, RWMG composition, stakeholder participation, disadvantaged communities (DAC) participation, outreach, stakeholder decision-making, geographical boundaries and other features, water management issues, water-related components, and relationships with adjacent Regions. The Region boundary shown in Figure 1-1 was determined during the RAP.

Water supply for the Antelope Valley Region comes from three primary sources: the State Water Project (SWP), surface water stored in the Littlerock Reservoir, and the Antelope Valley Groundwater Basin. The Antelope Valley Region's SWP contractual Table A Amount is 165,000 acre-feet per year (AFY). With proper treatment, SWP water is generally high quality water well-suited for municipal and industrial (M&I) uses; however, the reliability of the SWP water supply is variable and is widely regarded to have decreased in recent years. Surface water stored at the Littlerock Reservoir, which has a storage capacity of 3,325 acre-feet (AF), is used directly for agricultural uses and for M&I purposes following treatment.

The State Water Project delivers imported water to the Antelope Valley.

The Antelope Valley Groundwater Basin is comprised of a principal aquifer that yields most of the current groundwater supplies and several less-used deep aquifers. Groundwater levels in some areas have declined significantly since the early 1900s due to over-extraction. Groundwater quality is excellent within most of the principal aquifer but degrades toward the northern portion of the dry lakes areas. High levels of arsenic, fluoride, boron, and nitrates are a problem in some areas of the

Basin. The groundwater in the Basin is currently supplied to both agricultural and M&I uses.

Recycled water and stormwater are secondary sources of water supply. A portion of the recycled water from the Antelope Valley Region's two large water reclamation plants, Los Angeles County Sanitation Districts' (LACSD) plants in Palmdale and Lancaster, are used for maintenance of Piute Ponds wetlands, agricultural irrigation, landscape irrigation, and a recreational lake at Apollo Park. The expansion of recycled water use continues in the Region.

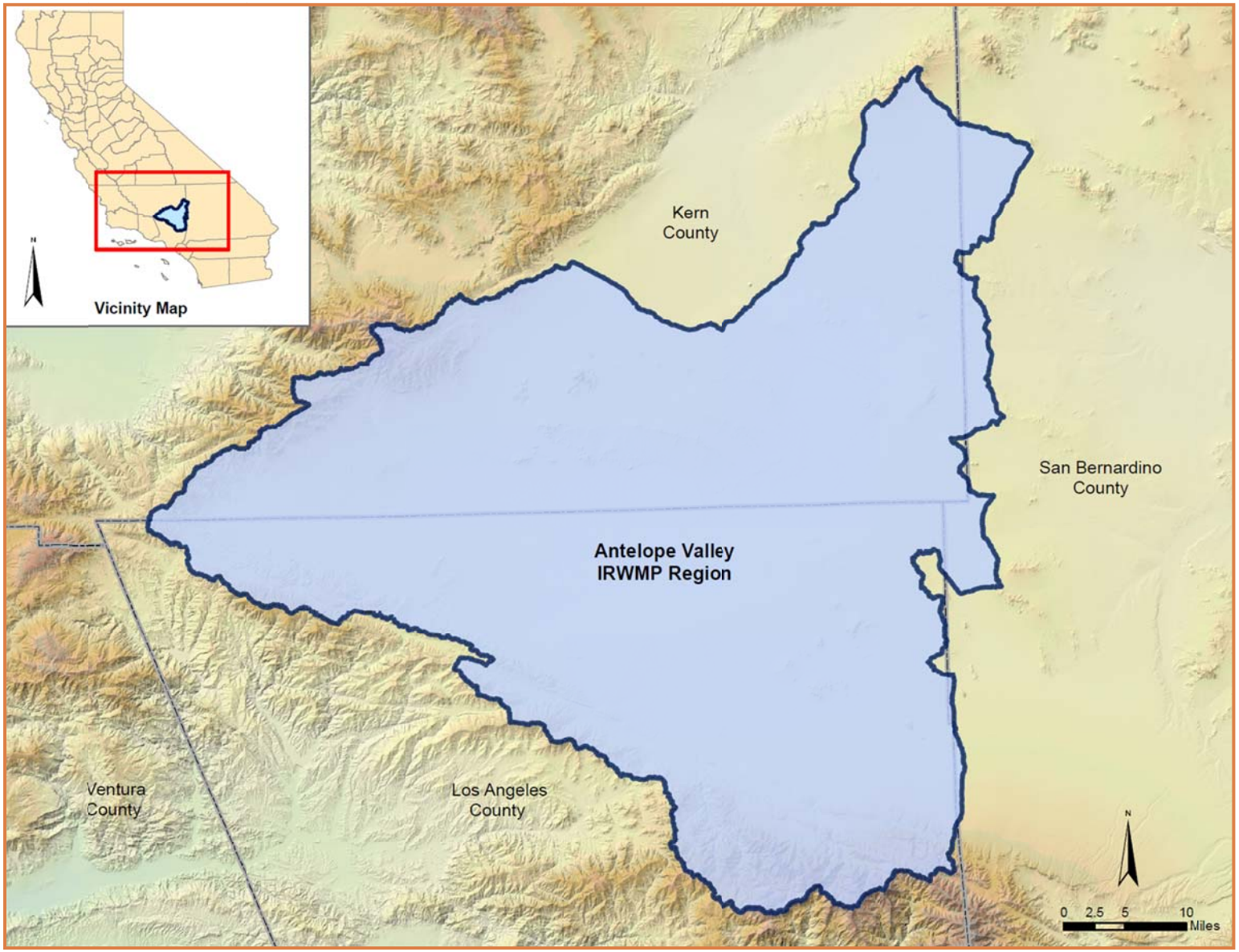
Surface flows (i.e., storm water runoff) from the surrounding San Gabriel Mountains, Tehachapi Mountains, and hills cross alluvial fans and flow through deeply excised washes. The flows make their way from the wash headwaters, filling vernal pool clay pan depressions and wetlands such as Piute Ponds, before either percolating into sand dune areas where water is sequestered for summer use or flowing to the lowest points in the Valley at Rosamond, Buckhorn, and Rogers dry lakebeds. As the surface flow makes its way to the lakebeds it allows the larger sediments to settle out first and transports smaller silty clay further into the Valley interior. The surface flow and silty clay helps to fill in and re-establish the soil surface structure, which protects the lakebed areas from wind erosion, sustains the surficial strength of the lakes (important to the operational mission of EAFB), and sustains local habitats. Some surface flows ultimately evaporate. .

Historically, water supplies within the Antelope Valley Region had been used primarily for agriculture; however, due to population growth beginning in the mid-1980s, water demands from residential and industrial uses have increased significantly and this trend is expected to continue. Projections indicate that nearly 550,000 people will reside in the Antelope Valley Region by the year 2035, an increase of 140 percent.

The expected continuation of growth in the Antelope Valley Region will affect water demand and increase the need for management of additional imported water, recycled water and urban runoff. More residents will also lead to higher demand for water-based recreation. Increasing demands coupled with periodic curtailments of SWP deliveries have intensified the competition for available water supplies. This competition has often limited the water available for natural habitats within the Antelope Valley. In addition, growth in the Valley will likely be influenced by climate change.

Thus, these potential impacts could affect most residents within the Antelope Valley Region. In order to establish a viable action plan, a broad representation of stakeholders throughout the Antelope Valley must be maintained to update this IRWM Plan.

Figure 1-1: Antelope Valley IRWM Region



1.2 Stakeholder Participation

The Stakeholder process was started during the original formation of the Antelope Valley RWMG.

An extensive stakeholder outreach process is crucial to ensure that this IRWM Plan reflects the needs of the entire Antelope Valley Region, promotes the formation of partnerships, and encourages coordination with state and federal agencies. One of the benefits of this planning process is that it brings together a broad array of groups into a forum to discuss and better understand shared needs and opportunities. Residents of the Antelope Valley Region are facing changing conditions that increase the likelihood of serious disruption in water-related services or long-term degradation of water supply or environmental resources. Agencies and planning jurisdictions must work closely together in order to assure the delivery of good quality, reliable water while maintaining the quality of life in the Antelope Valley Region.

The 2007 IRWM Plan benefited from active participation by a wide range of stakeholders. Members of the RWMG and other stakeholders participated in fifteen stakeholder meetings, reviewed draft document materials, and provided extensive collaborative input to shape the 2007 IRWM Plan. For those topics that required further discussion during Plan development, stakeholders engaged in smaller, focused group dialogue to ensure that all stakeholder concerns were being considered. Through participation in stakeholder meetings stakeholders were exposed to a variety of opportunities for discovering and establishing mutually beneficial partnerships.

The 2013 updates to the Plan also benefited from extensive stakeholder participation. A total of 12 stakeholder meetings were held between February 2012 and December 2013. In addition, numerous special committee meetings were held to address specific topics (e.g., Advisory Team, integrated flood management, DAC outreach, climate change, salt and nutrient management). The 2013 updates continued to support the collaboration and partnerships that originated during the 2007 Plan development.

1.2.1 Regional Water Management Group

As described earlier, agencies in the Antelope Valley Region recognized the need for, and benefits of, regional cooperation and planning. In an effort to adequately represent the Antelope Valley Region, the RWMG was formed in 2007 through an MOU (Appendix A). By signing the MOU, the agencies agreed to contribute funds to help develop the original 2007 IRWM Plan, provide and share information, review and comment on drafts of the IRWM Plan, adopt the final 2007 IRWM Plan, and assist in future grant applications for the priority projects selected.

The MOU was amended in April 2009 to establish the organization and responsibilities of the IRWM governance structure, including the RWMG, the Advisory Team, and the Stakeholder Group.

The RWMG included AVEK, the Antelope Valley State Water Contractors Association (AVSWCA), the City of Lancaster (Lancaster), the City of Palmdale (Palmdale), Littlerock Creek Irrigation District (LCID), LACSDs 14 and 20, Los Angeles County Waterworks District No. 40 (LACWD 40), Palmdale Water District (PWD), Quartz Hill Water District (QHWD), and Rosamond Community Services District (RCSD). These participants' roles and responsibilities for managing water, natural resources, and land use within the Antelope Valley Region are discussed below:

1.2.1.1 Antelope Valley-East Kern Water Agency

AVEK is a wholesale supplier of SWP water to the Antelope Valley Region. AVEK's service area encompasses nearly 2,400 square miles in northern Los Angeles and eastern Kern Counties as well as a small portion of Ventura County. AVEK was granted charter by the State in 1959 and became a SWP contractor in 1962.

AVEK is the third largest SWP contracting agency with a current contractual Table A amount of 141,400 AFY. Table A water is a reference to the amount of water listed in "Table A" of the contract between the SWP and the contractors and represents the maximum amount of water a contractor may request each year. This volume includes both agricultural and M&I SWP water, which AVEK distributes in the Antelope Valley Region. AVEK estimates that it currently provides water to a population of approximately 285,000 people through seventeen retail water agencies and water companies. Currently, AVEK customers utilize approximately 75,000 AFY of the Table A Amount.

AVEK does not have production groundwater wells and does not provide recycled water. The agency does operate a water bank, the Water Supply Stabilization Project No.2 (WSSP-2), that started operations in 2010. AVEK provides a small amount of SWP water to areas outside of the Antelope Valley. The agency is also a partner in the Joint Powers Authority (JPA) for the AVSWCA.

1.2.1.2

The AVSWCA is a JPA of the three local SWP contractors of the Antelope Valley (AVEK, LCID, and PWD) that was formed in May 1999.

The AVSWCA has a declared Statement of Principles and Objectives to frame its roles and responsibilities:

- to make optimum use of available water supplies to meet current and anticipated demands;
- to confirm that the AVSWCA will not take away any water rights within the Antelope Valley;
- to develop plans for maximum cooperative use of the available water resources;
- to establish an equitable means of apportioning the benefit and burdens of water resource management;
- to prevent the export of native surface water and groundwater from the Antelope Valley and to develop reasonable limitations upon the export of any other water from the Antelope Valley;
- to provide a mechanism for the storage and recovery of water;
- to encourage the protection and preservation of surface water and groundwater quality;
- to develop conservation plans to promote reasonable beneficial use of water;
- to respect existing jurisdictional authority of the public agencies and water suppliers in the Antelope Valley;
- to solicit and welcome the advice, council and support of interested parties and the public in the implementation of these principals and objectives; and
- to conduct regularly scheduled meetings to advance these principles and objectives and discuss other matters of common interest.

In August 2006, the AVSWCA accepted responsibility as the facilitator for groundwater banking projects in the Antelope Valley.

The WSSP-2, operated by AVEK, is one of the groundwater basin banking projects that was selected for implementation during the 2007 IRWMP development. The WSSP-2 utilizes SWP water delivered to the Antelope Valley Region's Westside for groundwater recharge and supplemental supply for the Antelope Valley Region during summer peaking demands and anticipated dry years. The recharge percolation rate is expected to be an average of half a foot per day on 400 acres of the 1,400 acre site. The project will deliver raw water to the recharge site through three existing turnouts and currently has a withdrawal capacity of approximately 20 mgd (23,000 AFY).

1.2.1.3 City of Lancaster

The City of Lancaster is a highly acclaimed, award-winning municipality with a thriving community of nearly 157,000. Located approximately one hour north of Los Angeles, Lancaster's clean air, attainable housing, wide open spaces, and close-knit community make it the ideal place for families. The City serves as a commercial, cultural and educational center for the Antelope Valley, as well as for northern Los Angeles County.

Lancaster's potential for growth, along with a strong commitment to business from local leaders, earned Lancaster the "Most Business-Friendly" Eddy Award from the Los Angeles Economic Development Corporation in 2007. Additionally, Lancaster has received nineteen League of California Cities Helen Putnam Awards of Excellence; sixteen 3CMA Awards; numerous awards for its accomplishments in the areas of parks, recreation & arts, financial reporting, economic development, public works, and public safety. The City's most recent accolade hailed from the National Energy Globe Award committee, which recognized Lancaster's advancements in the solar energy arena.

The Planning Department is responsible for the development and implementation of a variety of short-, mid-, and long-range plans, including the City's General Plan, various specific plans, and the City's zoning and subdivision ordinances. The Public Works Department has received National Awards for Economic Development Programs and innovative Public Works projects, and it is responsible for various environmental compliance and conservation projects, as well as flood control and stormwater management. The Parks, Recreation and Arts Department manages thirteen City parks with more than 500 acres, including athletic fields, swimming pools, playgrounds and walking trails.

Lancaster is a Charter City, incorporated in 1977, and operates under a Council-Manager form of government. The City government provides various municipal services related to water and natural resources management. Utility services within Lancaster are provided by several public and private agencies. Water service is primarily provided by LACWWD 40; and sewer service is provided by the City of Lancaster and LACSD 14.

1.2.1.4 City of Palmdale

Palmdale, the first community within the Antelope Valley to incorporate as a city in 1962, is located in the northeast reaches of Los Angeles County, separated from Los Angeles by the San Gabriel Mountain range. Over the last 20 years, Palmdale has consistently been ranked in the top ten fastest growing cities in the U.S. based on percentage change. As of 2010, the population is estimated at 152,750, making Palmdale the sixth

largest city in Los Angeles County and the largest "desert city" in California. With 105 square miles of land in its incorporated boundaries, Palmdale is in the top 100 largest cities in the U.S. in geographic area.

The Palmdale government provides various municipal services related to water and natural resource management. The Planning Department is responsible for the development and implementation of a variety of short-, mid-, and long-range plans, including the City's General Plan, various specific plans, and the City's zoning and subdivision ordinances. The Public Works Department is responsible for the development and maintenance of the City's flood control and stormwater management facilities. The Parks and Recreation Department's responsibilities include the administration, management and implementation of programs that maintain and beautify Palmdale's parklands and recreational facilities.

Utility services within Palmdale are provided by several public and private agencies. Water service is primarily provided by PWD and LACWD 40; sewer service is provided by LACSD 20; and refuse pickup and disposal service is provided by Waste Management, Inc. of the Antelope Valley under a franchise agreement with the City.

1.2.1.5 Littlerock Creek Irrigation District

LCID is the smallest of the three SWP Contractors within the Antelope Valley. LCID's service area comprises approximately 17 square miles within the southeastern region of the Antelope Valley. The majority of LCID consists of unincorporated land east of the City of Palmdale, though a small portion of the city is within LCID's boundaries.

LCID receives raw water from the SWP, local surface water from Littlerock Reservoir and pumps groundwater. LCID's SWP contractual Table A amount is 2,300 AF and the agency provides water to approximately 1,130 active service connections (LAFCO 2004).

LCID is a partner in the JPA for the AVSWCA and also participates in a joint use agreement with PWD for shared use of Littlerock Dam for treated water. LCID's surface water source is from surface runoff collected in Littlerock Reservoir. Littlerock Reservoir, which is co-owned with PWD, is fed by the runoff from the San Gabriel Mountains and has a useable storage capacity of 3,500 AF of water. PWD and LCID jointly have long-standing water rights to 5,500 AFY from Littlerock Creek flows (PWD 2001). LCID has an agreement with PWD to treat LCID's SWP and Littlerock Creek water when it is needed for potable use. LCID has one groundwater well for agriculture, four groundwater wells producing potable water and five (5) one-million gallon tanks to store potable water for residential use (personal communication, LCID, 2005).

1.2.1.6 Los Angeles County Sanitation District Nos. 14 and 20

LACSD is a confederation of independent special districts serving about 5.1 million people in Los Angeles County. LACSD's service area covers approximately 800 square miles and encompasses 78 cities and unincorporated territory within the County. The agency is made up of 24 separate Sanitation Districts working cooperatively under a Joint Administration Agreement with one administrative staff headquartered near the City of Whittier. Each Sanitation District has a separate Board of Directors consisting of the Mayor of each city within that District and the Chair of the Board of Supervisors for county unincorporated territory. Each Sanitation District pays for its proportionate share of joint administrative costs. The Antelope Valley is served by the LACSD 14 and 20.

LACSD 14 was formed on August 31, 1938, to provide wastewater management services in the Antelope Valley. LACSD 14, whose service area is 45 square miles, serves a large portion of Lancaster as well as portions of Palmdale and adjacent unincorporated areas of Los Angeles County. LACSD 20 was formed on August 7, 1951, to provide wastewater management services for the Palmdale area. Its service area is approximately 31.4 square miles and serves the majority of residents within Palmdale, as well as adjacent unincorporated Los Angeles County areas.

The LACSD owns, operates, and maintains over 1,300 miles of main trunk sewers and 11 wastewater treatment plants with a total permitted capacity of 636.8 million gallons per day (mgd). The LACSD sewerage system currently conveys and treats approximately 510 mgd of wastewater. During 2004, a total of approximately 187 mgd of wastewater was treated to a tertiary level and approximately 35 percent (65 mgd) of the effluent was reused for a variety of applications. Operation of LACSD facilities influence the community and environment in the Antelope Valley by providing effluent to landscape and agricultural irrigation, industrial process water, recreational impoundments (i.e., Apollo Lakes), wildlife habitat maintenance (i.e., Piute Ponds), and groundwater replenishment. Expansion of recycled water use in the Antelope Valley continues.

1.2.1.7 Los Angeles County Waterworks District No. 40

LACWD 40 is a public water agency that serves portions of the Cities of Lancaster and Palmdale, and several small communities in the eastern portion of the Antelope Valley. LACWD 40 was formed in accordance with Division 16 Sections 55000 through 55991 of the State Water Code to supply water for urban use throughout the Antelope Valley. It is governed by the Los Angeles County Board of Supervisors with the Waterworks Division of the County Department of Public Works providing administration, operation and maintenance of LACWD 40's facilities.

LACWD 40 provides water service to approximately 174,000 residents with water that is imported to the Antelope Valley through the State Water Project and then treated at AVEK's Quartz Hill Water Treatment plant and Eastside Water Treatment Plant. This supply is supplemented by groundwater pumped from the Antelope Valley Groundwater Basin by 54 wells owned and operated by the LACWD 40. LACWD 40's service area encompasses approximately 554 square miles which is comprised of eight regions serving customers in the communities of Lancaster (Region 4), Pearblossom (Region 24), Littlerock (Region 27), Sun Village (Region 33), Desert View Highlands (Region 34), Northeast Los Angeles County (Region 35), Lake Los Angeles (Region 38), and Rock Creek (Region 39). It is noted that Regions 4 and 34 are integrated and operated as one system. Regions 24, 27, and 33 are also integrated and operated as one system.

In an effort to ensure supply reliability, LACWD 40 is undertaking projects to store excess imported water in the ground during wet years so that it can be extracted and used during dry years. LACWD 40 has implemented an aquifer storage and recovery program (ASR) and equipped many of its groundwater wells so that excess treated imported water in the LACWD 40 distribution system can be injected through the wells and stored until a future time when it is needed. LACWD 40 is also working with AVEK to store water at their Water Supply Stabilization Project No. 2 water bank.

LACWD 40 also has an agreement with LACSD to purchase up to 13,500 acre-feet of tertiary treated recycled water produced at their Palmdale and Lancaster Water Reclamation Plants. The City of Lancaster and City of Palmdale are currently working with LACSD on separate purchase

agreements and LACWD 40 will subsequently modify their existing agreement. The recycled water will be made available through ongoing construction of the North Los Angeles County Regional Recycled Water Project which will be a completely separate distribution system for irrigation and other non-potable uses. This project will decrease the Region's reliance on imported water and local groundwater supplies.

1.2.1.8 Palmdale Water District

PWD is a wholesaler and retailer of potable water. PWD was established in 1918 as the Palmdale Irrigation District (PID). The name was changed in 1973 to reflect the absence of agricultural water service. As stated above, PWD is also a partner in the JPA for the AVSWCA. PWD boundaries encompass approximately 187 square miles. Approximately 46 square miles are directly served by PWD and an additional two square miles are served through agreements with AVEK (the majority of the remaining area falls within the Angeles National Forest).

PWD has three sources for water: (1) imported water from SWP, of which it has a contractual Table A amount of 21,300 AFY, (2) local groundwater, and (3) surface water (Littlerock Reservoir, which is jointly owned by LCID, and PWD). Littlerock Reservoir has a storage capacity of 3,325 AF of water. Palmdale Lake stores the SWP water and any Littlerock Reservoir discharges until treatment and distribution. Groundwater wells produce approximately 40 percent of PWD's water supply. Recycled water is projected for use within the PWD service area in the future.

In general, PWD serves the eastern half of the City of Palmdale and adjacent unincorporated areas of Los Angeles County, and maintains over 26,000 service connections.

1.2.1.9 Quartz Hill Water District

QHWD is an independent special district that was incorporated in 1954, with a service area of about 4.5 square miles located in the southwest end of the Antelope Valley at the north end of Los Angeles County.

QHWD's service area includes portions of the Cities of Lancaster and Palmdale as well as unincorporated County land. Water service is provided to residential, commercial, industrial, and agricultural customers, as well as for environmental and fire protection uses.

QHWD is a retailer of imported water from AVEK and produces local groundwater. In 2009, QHWD imported approximately 3,146 AF of water from AVEK, and pumped approximately 2,431 AF of groundwater for distribution in its service area.

1.2.1.10 Rosamond Community Services District

RCSD was formed in 1966 under the Community Services District Law, Division 3, Section 61000 of Title 6 of the Government code of the State of California. RCSD's service area boundary encompasses approximately 31 square miles of unincorporated residential, industrial, and undeveloped land. The majority of the land located within the RCSD service area is undeveloped. The developed property focuses around central Rosamond, with the exception of the Tropico Hills.

RCSD provides water, sewer, lighting service, and public park maintenance services to residential, commercial, industrial, and agricultural customers, as well as water for environmental and fire protection uses.

RCSD is a retailer of imported water from AVEK and produces local groundwater. In 2010, RCSD imported approximately 261 AF of water from AVEK, and pumped approximately 2,752 AF of groundwater for distribution in its service area.

Table 1-1: Participating Entities

Agency	Roles and Responsibility
AVEK	Wholesaler of imported water to the Antelope Valley Region, water banking
AVSWCA	Members provide imported water to the Antelope Valley
City of Lancaster	Provides land-use planning, environmental, flood management, and parks and recreation services
City of Palmdale	Provides land-use planning, environmental, flood management, and parks and recreation services
LCID	Supplies surface and imported water to the Antelope Valley Region
LACSD 14	Provides collection and treatment of wastewater and supplies recycled water to portions of the Antelope Valley Region
LACSD 20	Provides collection and treatment of wastewater and supplies recycled water to portions of the Antelope Valley Region
LACWWD 40	Supplies water to portions of the Antelope Valley Region in Los Angeles County
PWD	Supplies water to portions of Palmdale and adjacent unincorporated areas of Los Angeles County
QHWD	Supplies water to portions of the southwest end of the Antelope Valley
RCSD	Supplies water to portions of unincorporated Kern County

The composition of the RWMG provides a good cross-sectional representation of all water/natural resource and land-use management activities for the Antelope Valley Region. Table 1-1 provides a summary of participating agencies' roles and responsibilities specific to this IRWM Plan development and implementation.

1.2.2 Stakeholder Group

In addition to the RWMG, this IRWM Plan has received the input of many other interested agencies and organizations. Membership in the stakeholder group has been broadly extended to a number of entities and membership continues to grow. Neither a financial contribution nor agency status are required to be part of the collaborative IRWM planning process. Through extensive outreach efforts, individuals from disadvantaged, small, and rural communities as well as other interested groups are continually encouraged to participate, and are being informed of IRWM Plan development efforts through presentations, media relations, and other outreach in their communities.

This IRWM Plan has been prepared through a collaborative process of many agencies and organizations with an interest in improving water supply reliability and sufficiency, water quality, water conservation, flood control, natural habitat, and land-use planning in the Antelope Valley

The Stakeholders are given a tour of the Rosamond Dry Lake bed by EAFB staff.

Region. This subsection lists all current stakeholders grouped into several categories and describes their roles in the planning process. The broad array of participants includes the agencies that comprise the RWMG as well as an extensive mix of other cities and regulatory, environmental, industrial, agricultural, and land-use planning agencies that represent all areas of the Antelope Valley Region. A brief discussion of coordination efforts with local planning, State, and Federal agencies is also provided where appropriate.

During the preparation of the 2013 IRWM Plan updates, Stakeholder group meetings were held regularly to allow for discussion of issues facing the Antelope Valley Region. These meetings were open to the public and all other interested parties. Copies of the meeting agendas, minutes, and presentations are available on the project website (www.avwaterplan.org).

1.2.2.1 State Water Project Contractors

The State Water Project Contractors include agencies that provide distribution of SWP water to the Antelope Valley. Each of these agencies is a member of the RWMG and was described in Section 1.2.1. These agencies include the AVSWCA, AVEK, LCID, and PWD.

1.2.2.2 Retail Water Purveyors

The retail water purveyors include agencies that have water management responsibilities in the Antelope Valley Region. A majority of these agencies are members of the RWMG and were described in Section 1.2.1. These agencies include LACWD 40, QHWD, and RCSD.

1.2.2.3 Local Jurisdictions/Land-Use Planning Agencies

Several land-use planning departments and agencies have been involved in the development and implementation of the projects and objectives of this IRWM Plan. Their participation provides valuable input in meetings, ensures accurate and consistent land-use planning information, and helps to incorporate local planning documents and goals into the IRWM Plan objectives. In addition, representatives of the Cities of Palmdale, Lancaster, California City, and Boron, and the Los Angeles and Kern County Departments of Regional Planning, participated in the stakeholder meetings.

1.2.2.4 Federal Agencies

Several federal agencies have been involved in the development and implementation of the objectives and projects for the IRWM Plan. Coordination with federal regulatory agencies is essential to the development and implementation of all recommended projects due to the need for regulatory and environmental approval prior to implementation. The federal agencies involved include: the United States Department of Agriculture, Natural Resources Conservation District, United States Geological Survey, and EAFB. The role of EAFB is to ensure that their natural resource management and other mission goals are incorporated into the IRWM Plan.

1.2.2.5 Regulatory Agencies/State Agencies

Several state regulatory agencies have been involved in the development and implementation of the objectives and projects for this IRWM Plan. Their participation has focused particularly on water quality issues pertaining to groundwater recharge within the Antelope Valley Region. Coordination with state regulatory agencies is essential to the development and implementation of all

recommended projects due to the need for regulatory and environmental approval prior to implementation. The Lahontan Regional Water Quality Control Board (RWQCB) has participated in preparing this IRWM Plan. Furthermore, these agencies have had the chance to address items of concern on these projects at the regularly scheduled stakeholder meetings. The roles and responsibilities of these agencies are to ensure that regulatory compliance standards and goals are incorporated in this IRWM Plan. The agencies include: DWR, the Lahontan RWQCB, the California Department of Public Health, the California State Parks, and the California State Department of Fish and Game. DWR specifically provided support during outreach calls with other Lahontan Regions.

1.2.2.6 Environmental/Conservation Community

The role and responsibility of the environmental/conservation community is to ensure that goals for conservation and protection of natural resources and habitat within the Antelope Valley are incorporated in this IRWM Plan. The stakeholder groups involved include the Antelope Valley Conservancy, the Antelope Valley Water Conservation Coalition, Antelope Valley Resource Conservation District and the Sierra Club.

Natural resources conservation is a priority for the Region.

1.2.2.7 Building Industry

The Building Industry Association of Southern California – Los Angeles/Ventura Chapter (BIA LA/V) role is to ensure land-use planning and growth management within the Antelope Valley is incorporated in this IRWM Plan. The building industry entities involved include two chapters of the Building Industry Association, the Antelope Valley Chapter and the South Eastern Kern County Chapter.

The agricultural industry is integral to the Region's economy.

1.2.2.8 Agricultural/Farm Industry

Agricultural and Farm interests for the Antelope Valley Region have been represented by the Los Angeles County and Kern County Farm Bureaus as well as individual farm and land owners. Their role is to ensure that agricultural and farm interests are incorporated in this IRWM Plan.

1.2.2.9 Wastewater Agency

Wastewater management for the Antelope Valley is provided by LACSD Nos. 14 and 20. The LACSD is a member of the RWMG and its roles and responsibilities are described in Section 1.2.1.

1.2.2.10 Mutual Water Companies

There are several mutual water companies in the Antelope Valley that provide water-related services to the Antelope Valley Region. Their role is to ensure that their water management goals are incorporated in to this IRWM Plan. Mutual water companies involved include: Antelope Park Mutual Water Company, Edgemont Acres Mutual Water Company, El Dorado Mutual Water Company, Evergreen Mutual Water Company, Golden Valley Mutual Water, Land Projects Mutual Water, Little Baldy Water Company, Westside Park Mutual Water Company, and White Fence Farms Mutual Water Company.

1.2.2.11 Media

Representatives of the Antelope Valley Press and the Mojave Desert News regularly attend RWMG stakeholder meetings and informed their readership of the goals and objectives of this IRWM Plan. Progress was reported on in these two major area newspapers as well as other local newsletters.

1.2.2.12 Others

Other agencies involved in the planning process include the Antelope Valley Board of Trade, Boron Community Services District (Boron CSD), the Mojave Chamber of Commerce, California City Economic Development Commission, the Association of Rural Town Councils, and individual town councils throughout the Antelope Valley Region. The various town councils' roles are to ensure that their water, natural resource, fire suppression, flood control, and land-use planning goals are incorporated in this IRWM Plan. Other groups promote commercial activity in the Region. A copy of a sign-in sheet from one of the many Stakeholder meetings can be found in Appendix B.

1.2.3 Activities

This IRWM Plan was developed to evaluate and address regional issues while recognizing and honoring local conditions and preferences. In order to accomplish this delicate balance, an effective process to involve stakeholders and incorporate their input has been implemented. The process centers on regular stakeholder meetings open to the public where attendees are invited to participate in several ways. During the preparation of the 2013 IRWM Plan updates, attendees were asked to participate in facilitated discussions of major items of interest, to review draft Plan chapters and other prepared documents, and to provide input on the agenda for upcoming stakeholder meetings. These meetings were announced to a broad distribution list via e-mail and all materials developed for use in stakeholder meetings were made available on the project website. The methods for stakeholder involvement and input are described below:

- Notification of Intent (NOI): An NOI to prepare an update to the 2007 IRWM Plan was published in three local newspapers on July 15, 2013 and on July 22, 2013. A copy of the notice is provided in Appendix C. The published NOI contained the following language:

  > "The Antelope Valley Integrated Regional Water Management (IRWM) Program is preparing an update to the Antelope Valley IRWM Plan adopted in 2007. IRWM Plans are regional plans designed to improve collaboration in water resources management. The first IRWM Plan for Antelope Valley was published in 2007, following a multi-year effort among water retailers, wastewater agencies, storm water and flood managers, watershed groups, the business community, agriculture representatives, and non-profit stakeholders to improve water resources planning in the Antelope Valley IRWM Region.
  >
  > In response to changes in the State's integrated planning requirements, the Antelope Valley IRWM Program is preparing an update to the 2007 IRWM Plan. This update is an opportunity to incorporate additional stakeholder interests into the IRWM Plan, and revisit the Plan in light of changes that have occurred since 2007.
  >
  > The 2007 IRWM Plan and information concerning the update may be viewed online at http://avwaterplan.org.
  >
  > Questions regarding the AV IRWM update should be directed to: Aracely Jaramillo at AJaramillo@dpw.lacounty.gov
  >
  > This public notice is being published in accordance with section 10543 of the California Water Code."

- Review of Plan Sections: This IRWM Plan synthesizes and extends a significant body of work related to water supply, water quality, flood management, environmental resources, and open space for the Antelope Valley Region. The original sections of the 2007 IRWM Plan were updated and Stakeholders were also provided the opportunity to review the draft 2013 IRWM Plan updates and the material was adopted only after the stakeholders reached facilitated broad agreement on the material. The subjects of the sections include: introduction, Region description, issues and needs, objectives, resource management strategy development, project integration and objectives assessment, Plan and project evaluation and prioritization, and framework for implementation. These sections incorporate and integrate stakeholder-generated information and aggregate this information from across the entire Antelope Valley Region.
- Stakeholder Meetings: These meetings provide background on the planning process; identify issues, opportunities and constraints; consider opportunities for project integration, and identify comments on the chapters and draft plans. They also provide a forum for more detailed discussion of the issues related to revision of this IRWM Plan, including the prioritization and selection of projects for IRWM grant funding.
- Project Website: A project website was developed (www.avwaterplan.org) to facilitate the distribution of project information to stakeholders. The website contains background information about Plan development, a schedule of meetings, and contact information. The website also includes a database tool through which stakeholders can submit or review projects or project concepts. A print out of the home page is included in Appendix C.
- Electronic and Written and Communications: Electronic mail was the main tool used to maintain a high level of stakeholder communication and engagement. All meetings and public notices were sent as far in advance as possible to stakeholders. Various stakeholder groups also forwarded these messages to their constituencies, thereby reaching additional stakeholders. In addition, written communications in the form of letters to cities and press releases to the media were utilized to expand awareness of, and participation in, this IRWM Plan development. Regular attendance at stakeholder meetings by members of the local press also allowed the residents of the Antelope Valley Region to be informed. Sample email notifications are provided in Appendix C.

1.2.4 Community Outreach

Community outreach within the Antelope Valley Region has been a key component to a successful IRWM Plan. Simply stated, a regional plan should have regional input, and should incorporate the widest variety of stakeholders possible. Initial outreach efforts began in 2007 and were targeted at improving overall stakeholder participation through increased agency and organized committee involvement, including disadvantaged, underserved, and smaller communities in the Region. A DAC Outreach Subcommittee had been formed to assist in outreach efforts. More information about these early efforts may be found in the 2007 IRWM Plan, Section 1.2.4.

Public Outreach Subcommittee members meet to discuss various opportunities to involve more Antelope Valley communities, including DACs.

For the 2013 IRWM Plan updates, outreach was focused on DAC areas but also extended to underserved and other rural communities. Efforts included presentations to the Antelope Valley Board of Trade and Quartz Hill Chamber of Commerce, as well as booths at the Thursday Night on the Square

event and the Antelope Valley Fair and Alfalfa Festival. Outreach materials for these events can be found in Appendix C.

While DAC outreach efforts were underway, additional steps to better identify environmental justice problems, underrepresented, and rural populations within the Region were taken.

1.2.4.1. Disadvantaged Communities

For the 2013 IRWM Plan updates, A DAC Outreach committee was formed to assist with data collection, outreach efforts, and project solicitation in DAC areas. The committee was composed of volunteer members representing a diverse cross section of the active Antelope Valley IRWM Plan stakeholders including DACs, DWR, and mutual water companies. The members soon developed and implemented a multifaceted outreach campaign to support the IRWM Plan that would more actively address the needs of DACs. Overall, the two main goals of the committee were to:

- Encourage participation by DACs and solicit input into Antelope Valley IRWM Plan updates, and
- Educate target audiences in DAC areas about the purpose and benefits of the Antelope Valley IRWM Plan.

After DAC areas were identified using mean household income (MHI) data from the DWR website, a coordination effort to speak at DAC community meetings was initiated. Initial contact was made with representatives from Lake Los Angeles, Mojave Public Utility, Boron Community Services District, North Edwards Water District, Edgemont Acres Mutual Water Company, California City, and others. Subsequent presentations at local community meetings were also arranged. In addition to PowerPoint presentations, handouts were provided at each meeting that included detailed schedules, project eligibility criteria, IRWM Plan goals, plan objectives, and technical assistance listings with contact information. Table 1-2 contains a list of the DAC outreach meetings scheduled for the 2013 IRWM Plan updates.

Table 1-2: DAC Outreach Meetings

Meeting/Event	Meeting Date
DAC Committee Meeting No. 1	April 18, 2012
Boron CSD	July 24, 2012
Mojave Public Utility District	August 14, 2012
North Edwards/Desert Lake CSD	August 14, 2012
Lake Los Angeles Town Council	August 28, 2012
DAC Committee Meeting No. 2	March 20, 2013
DAC Committee Meeting No. 3	May 15, 2013
Quartz Hill Chamber of Commerce	June 5, 2013
Littlerock Creek Irrigation District	June 12, 2013
Rosamond CSD	June 13, 2013
Lake Los Angeles conference call	August 7, 2013
Littlerock Creek Irrigation District	August 7, 2013

As defined by the 2012 IRWM Grant Program Guidelines-IRWM Plan Standards, DACs are defined as having an annual MHI that is less than 80 percent of the statewide annual median household income, which is $48,706 using Census 2010 data. To confirm DAC areas in the Antelope Valley Region, committee members conducted an initial assessment of the Antelope Valley Region using

DWR's online DAC map for census "places", "tracts", and "blocks". This identified a number of DAC areas in the Region, as listed below.

Boron, Unincorporated Los Angeles County

- Concerns regarding high arsenic levels in groundwater – would like to implement groundwater projects that reduce the concentration of arsenic.

Lake Los Angeles, Unincorporated Los Angeles County

- Interest in restoring Lake Los Angeles - could create reservoir for farming, fire usage, recreation, tourism/commercial, possible groundwater recharge site, possible use of recycled water.
- Provide flood control at Big Rock Creek Wash - heavy rains cause flooding along local roads.
- Transition from septic systems to sewer - they have some sewer lines installed but have not been used.

Littlerock, Unincorporated Los Angeles County

- Would like to see the creation and enforcement of xeriscaping ordinances designed for their community.
- Interested in opportunities for water recharge, banking, and conservation – although no specific examples were cited at the time.
- Concern about growth of communities vs. water reliability for the Region.

Mojave, Unincorporated Kern County

- Water conservation concerns. Specifically, the Mojave School District is interested in constructing two new high schools in a water-efficient manner. The DAC Outreach Subcommittee put the School District in contact with Mojave Utilities District and Environmental Justice Coalition for Water (EJCW) representative, Cindy Wise.

Portions of the City of Lancaster

- Critical water-related needs to be determined at scheduled community meetings.

Portions of the City of Palmdale (Desert View Highlands)

- Critical water-related needs to be determined at scheduled community meetings.

Roosevelt, Unincorporated Los Angeles County

- Primarily concerned with protecting their wells, protecting agricultural water rights, and preventing LACSD from "wasting water" on "new farms." An LACSD Outreach Subcommittee member followed up directly with community member concerns about the current and future LACSD water usage in their area.

A subset of disadvantaged communities are underrepresented communities. These communities are composed of minority communities living within disadvantaged communities. There are two areas within the Antelope Valley Region that were identified to meet this criterion, and they are both contained within the Cities of Lancaster and Palmdale. These areas are represented in the IRWM process by stakeholders from each of the two cities.

Refer to Appendix D of the IRWM Plan for larger DAC Census Block and Residential Area Maps and Census data printouts. In addition, two technical memoranda were prepared to characterize DACs and to define issues related to DAC areas. These documents are included in Appendix D:

- DAC Water Supply, Quality and Flooding Data Final Draft TM
- DAC Monitoring Plan Final Draft TM

1.2.4.2 Rural/Isolated Communities

Many communities that do not face the economic constraints of disadvantaged communities must deal with obstacles due to limited resources and geographic location. Many smaller, rural communities in the Antelope Valley Region are isolated, both politically and physically, from the agency and organizational happenings in the Antelope Valley Region, and the committee agreed that these communities would also be incorporated into our IRWM Plan outreach efforts as a result of this isolation.

Outreach efforts were extended to all communities in the Region to include taking the IRWM Plan message to traditionally-isolated and more rural areas of the Antelope Valley to include the following communities (see Figure 1-2):

- Boron
- Lake Los Angeles
- Leona Valley
- Mojave
- Quartz Hill
- Sun Village
- The Lakes Community
- Three Points

Rural communities frequently face economic constraints that make it difficult to implement projects and programs.

Although they are not considered 'disadvantaged,' these are towns that are generally very small in population, have fewer resources, and thus, a smaller organizational structure. Most often, these towns are not able to participate in many of the larger projects that municipalities are engaging in with respect to water and environmental resource related issues in the Antelope Valley Region. However, these communities are eager to participate in a Regional group that promotes a collaborative effort. Areas like Antelope Acres, Boron, Leona Valley, and Three Points have relatively high median household incomes but have been frustrated in trying to get specific projects implemented or tying in to regional efforts because of the long distances which separate many communities in the Antelope Valley Region.

1.2.4.3 Native American Tribal Identification

Research and outreach efforts were also made to identify and contact local Native American tribal communities through contacts with other Antelope Valley community groups and research. No organized tribes were identified through this outreach process. Previous efforts at outreach had determined that some Native American individuals within the Antelope Valley Region had been reached but reported that their lineage groups were not land holders and, therefore, not recognized as tribes or nations.

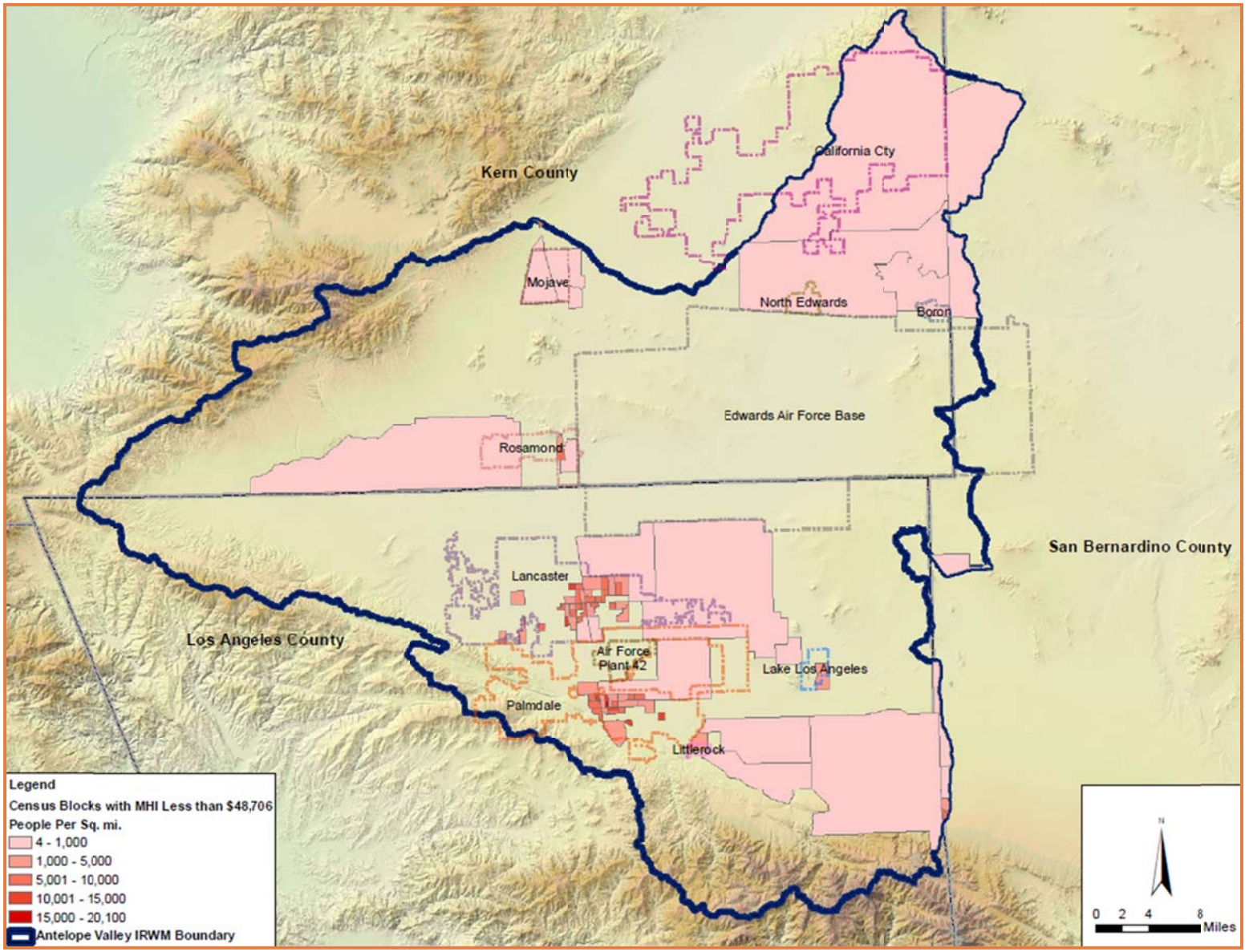
The Antelope Valley Indian Museum further reports that during the late 19th and early 20th centuries, most American Indian residents remaining in the Antelope Valley integrated with the ever-expanding European culture in Southern California, and the binding group ties of earlier times began to be erode the cultural base. As such, there are no formal reservations or rancherias in the Antelope Valley.

1.2.4.4 Environmental Justice Outreach

Environmental justice is important to every community, and the Antelope Valley Region is no exception to this rule. The United States Environmental Protection Agency (EPA) defines environmental justice as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Simply stated, this means that no group of people should bear a disproportionate share of negative environmental consequences resulting from industrial, governmental, and commercial operations or policies.

To begin identifying potential environmental justice issues facing the Antelope Valley, subcommittee members performed independent research and contacted the EJCW for further documented information and expert advice. The EJCW was not aware of any water-related environmental justice concerns in the Antelope Valley Region. Additionally, the committee used the EPA EnviroMapper maps found on www.city-data.com to locate hazardous waste sites within the Region. The EPA maps did show some hazardous waste landfills within the Region, but they did not appear to be located in populated areas or concentrated in any one community. Based on review of the EPA maps and discussions with EJCW, other non-governmental organizations and community members, it was discovered that there were no documented environmental justice issues in the Antelope Valley Region. Guidelines for incorporating DACs into the IRWM Plan that help prevent environmental justice issues from developing are detailed in the 2007 IRWM Plan and are repeated here.

Figure 1-2: Antelope Valley IRWM Disadvantaged Communities as Defined by Census Blocks and Population Densities



The major suggestions made by the EJCW were the following:

- Provide technical assistance, both to facilitate participation, and to assist with project development.
- Include an Environmental Justice Community representative on the governing body.
- Ensure that the on-going governance structure defined in the Plan includes a prominent role for Environmental Justice communities, including some influence over which projects are selected for future implementation grants.
- Ensure that there is a mechanism for Environmental Justice communities to participate in the evaluation of the plan over time.

Each of these suggestions are incorporated into the overall outreach strategy for the IRWM Plan except for the second bullet. There is no governing body representative for environmental justice.

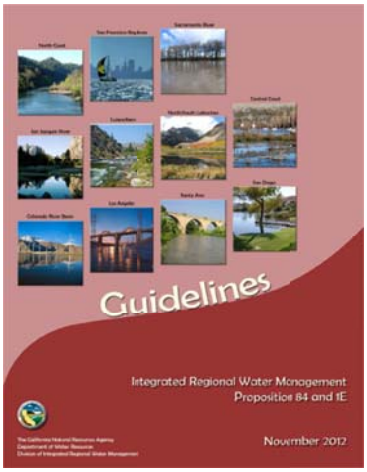
As the Antelope Valley communities expand and evolve, the IRWM Plan Stakeholder group will continue to assess environmental justice concerns throughout implementation of the Plan.

1.2.4.5 Media Coverage of Plan Preparation

Progress of the 2013 IRWM Plan updates was also covered by reporters who attended stakeholder meetings representing the Antelope Valley Press and the Mojave Desert News. Committee members found that many residents were already aware of this IRWM Plan because of the coverage by these newspapers. Their exposure has greatly helped keep members of the general public and DACs informed about the IRWM Plan updates.

1.3 Plan Updates

This subsection provides a brief overview of the planning process utilized to update the IRWM Plan to comply with the 2012 IRWM Grant Program Guidelines-IRWM Plan Standards.



1.3.1 Region Goals and Planning Objectives

The primary reason for this IRWM Plan is to develop a broadly supported water resource management plan that defines a meaningful course of action to meet the expected demands for water and other resources within the entire Antelope Valley Region through 2035. Region goals were originally developed in 2007 and were updated during the 2013 IRWM Plan updates. This IRWM Plan will address:

- How to reliably provide the quantity and quality of water that will be demanded by a growing population;
- Options to satisfy agricultural users' demand for reliable supplies of reasonable cost irrigation water; and
- Opportunities to protect, enhance, and manage current water resources and the environmental resources for human and natural benefit within the Antelope Valley Region.

In order to achieve these goals, a list of planning objectives for the IRWM Plan was developed back in 2007. This list is reproduced below. The 2013 IRWM Plan updates were completed in a fashion that preserves the original intent of these planning objectives.[2]

1. Develop and Adopt an Integrated Regional Water Management Plan for a planning period between 2005 and 2035 by December 31, 2007 that:
    a. is written to be a useful tool to a broad range of organizations within our region;
    b. describes reasonably foreseeable water demands for our region during the planning period;
    c. characterizes the available water supplies for our region during the planning period;
    d. describes and evaluates potential management actions that we can take to meet the expected water demand of everyone within the Region during the planning period;
    e. sets workable planning targets to be accomplished by specified future dates within the planning period;
    f. identifies potential and promising sources of money to pay to implement this IRWM Plan;
    g. sets priorities for implementation;
    h. is flexible and responsive to changing conditions;
    i. satisfies the guidelines published by DWR for IRWM Plans;
    j. satisfies the requirements published by DWR for AB 3030 groundwater management plans; and
    k. qualifies entities within our region to apply for water related grant funds from State sources such as Proposition 50, and Proposition 84, and Proposition 1E.
2. Discuss and describe how all broad-based regional planning efforts are related and how they will be coordinated:
    a. IRWM Plan;
    b. Adjudication;
    c. Water Storage District Proposal;
    d. Water Banking JPA; and
    e. others.
3. Establish cooperative relationships, new partnerships, and an optimistic approach to create a useful regional plan.
4. Each member of the RWMG will take ownership in this IRWM Plan and collaborate to produce, implement, and update a widely accepted plan.
5. Conduct strategic education and outreach to the public informing the target audiences of the following:
    a. the need for regional planning;

[2] These planning objectives should not be confused with the Region Objectives in Section 4. Planning objectives apply to the IRWM Plan document itself. Region Objectives apply to the Antelope Valley.

b. benefits of a cooperative approach;

c. the priorities for implementation;

d. how the public can participate; and

e. others?

6. Identify a back-up plan for meeting grant application deadlines.

Many of these objectives were reached by the end of 2007. Others are ongoing in nature and apply to the 2013 IRWM Plan updates. Again, it is the intent of these 2013 IRWM Plan updates to preserve the intent of the planning objectives.

1.3.2 Process for 2013 Updates

This planning process recognized the importance of three key elements to any successful public policy planning exercise: people, information, and action. It was designed to provide a forum for safe and effective dialogue among the various stakeholders. During the development of the 2007 IRWM Plan, the group agreed to the following steps for interaction through a professionally facilitated process. These steps were also implemented during the 2013 IRWM Plan updates:

1. Adopt Specific Measurable Attainable Relevant Time-based (SMART) goals;
2. Create a safe place for interaction;
3. Establish a clear course of action;
4. Demonstrate tangible progress; and
5. Iterate until group is satisfied.

The planning process was also designed to provide useful, broadly accepted information that supports clear action. The information gathering and generation portion of this process is summarized in Figure 1-3, Antelope Valley IRWM Plan Planning Process. It includes the following key steps that were repeated during the 2013 IRWM Plan updates:

- Identify the Antelope Valley Region's issues and needs: Illustrate the issues and needs of the Antelope Valley Region related to water resources in a manner that reflects the majority of Stakeholder concerns. These issues and needs are what drive the Stakeholders into taking action, and are discussed in Section 3. The Region issues and needs were revised with more current information during the 2013 IRWM Plan updates.
- Identify clear plan objectives: Collectively establish the quantifiable objectives that the regional entities will work together to accomplish between now and 2035. These Objectives and the Planning Targets that will be used to help measure their progress are discussed in Section 4. The Region Objectives and Planning Targets were revised during stakeholder meetings for the 2013 IRWM Plan updates.
- Resource Management Strategy Development: Involves reviewing existing documents to identify projects within the following resource management strategies (RMS) that could satisfy these IRWM Plan Region Objectives: water supply, water quality, flood management, environmental management, land use management, and climate change. Resource Management Strategy development is discussed in more detail in Section 5 and was revised during the 2013 IRWM Plan updates.
- Integration: Includes intra- and inter- resource management strategy integration between projects. Integration is discussed in more detail in Section 6, and the integration process was revised during the 2013 IRWM Plan updates.

- Evaluation and Prioritization: Includes identifying short-term and long-term regional priorities, evaluating and ranking Stakeholder-identified projects and management actions, and identifying which projects the group would take "action" on first. This step is presented in Section 7. This section also includes a discussion of the impacts and benefits of the IRWM Plan, and a discussion of the benefits and costs of the prioritized projects chosen for implementation. Project evaluation and prioritization was revisited during the 2013 IRWM Plan updates.
- Plan for Implementation: Finally, this planning process must empower the entities within the Antelope Valley Region to take meaningful action. The implementation plan presented in Section 8 provides the linkage to local planning entities, the governance structure and framework for implementing the Plan, options for financing, sources of funding and a list of performance measures that will be used to gauge progress, data management tools, and a process for updating the Plan in the future.

Throughout the development of the 2007 IRWM Plan and the 2013 Plan updates, public comments as well as Stakeholder comments have been reviewed, evaluated, discussed amongst the Stakeholder group as necessary, and incorporated into the document as appropriate.

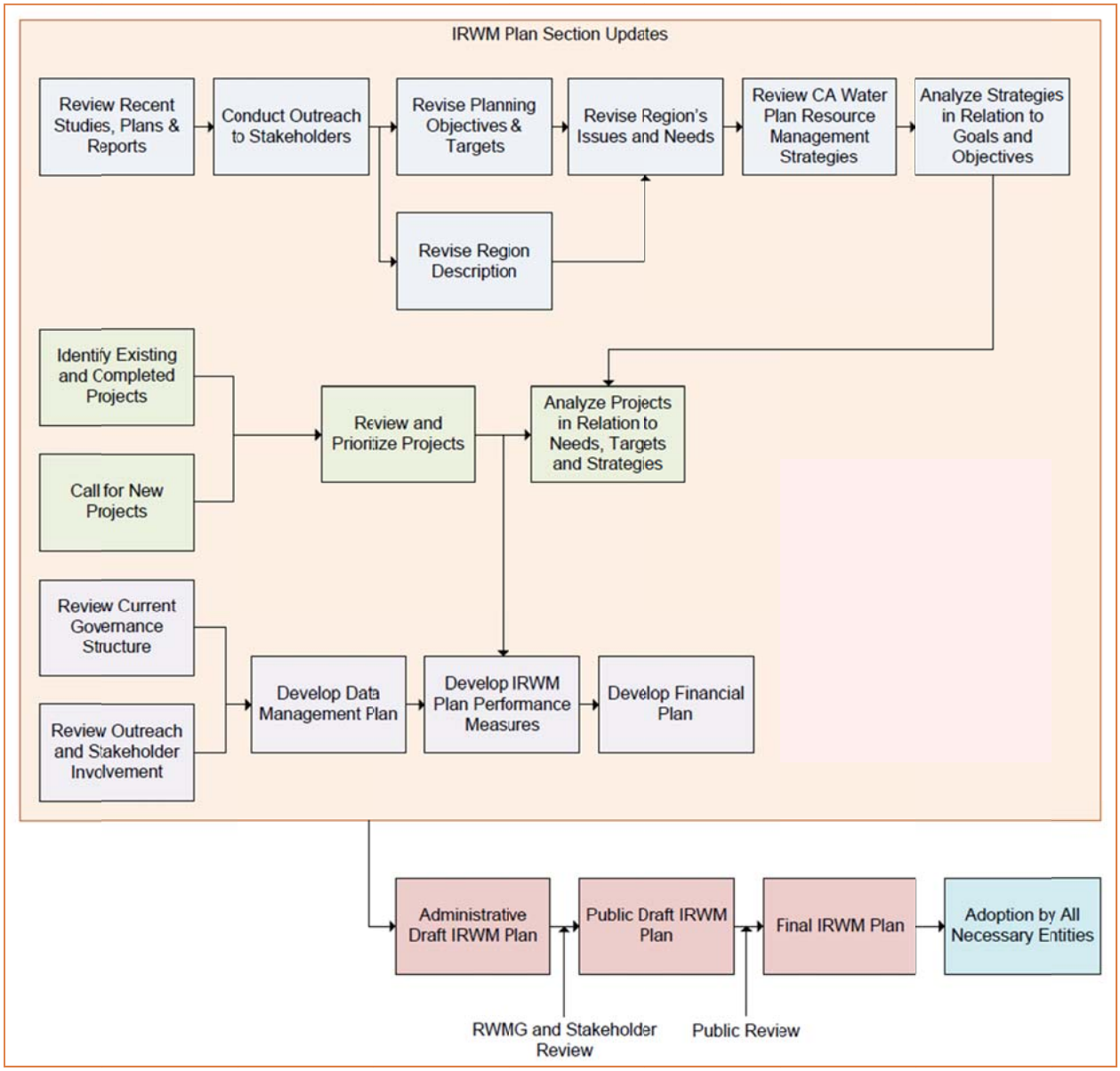
The 2013 Plan Updates were presented for public review in draft form from November 12th through December 10th, 2013. Comments received on the draft Plan were incorporated into a Final Plan that was completed by December 31st, 2013. The comments for the Draft 2013 Plan updates have been summarized into a comment response matrix and can be found in Appendix E. After the Final IRWM Plan is submitted to DWR and is approved, members of the RWMG plan to present the document (with 2013 updates) to their boards in the first quarter of 2014 for adoption during public meetings.[3]

1.3.3 Potential Obstacles to Plan Implementation

One potential obstacle to implementation of the IRWM Plan is the pending adjudication of the Antelope Valley Groundwater Basin. The IRWM Plan's water supply analysis is based on estimates made regarding availability and reliability of the groundwater supply and was used to identify specific objectives and planning targets for the IRWM Plan. Thus it is possible that the outcome of the adjudication may require a change in the estimates as well as the objectives and planning targets, which may delay implementation of the IRWM Plan. Additionally, the adjudication may place limitations not considered on the groundwater banking and recharge projects included for implementation.[4] However, the IRWM Plan is meant to be a dynamic planning document and as such will be updated at a minimum of every five years with the project priority list being kept up-to-date as discussed in Section 7.4.2.

[3] Some other agencies/stakeholders that are not RWMG members may also adopt the 2013 IRWMP Update.
[4] The number for total sustainable yield used in this 2013 IRWMP Update is selected strictly for long-term planning purposes and is not intended to answer the questions being addressed within the adjudication process (see Section 3 – Issues and Needs).

Figure 1-3: Antelope Valley Integrated Regional Water Management Planning Process



1.3.4 Groundwater Management Plan

This IRWM Plan defines a clear vision and direction for the sustainable management of water resources in the Antelope Valley Region through 2035. Inherent to this discussion is how groundwater will be managed to help meet the needs within the Antelope Valley Region now and into the future. The 2007 IRWM Plan was designed to meet the requirements for an AB 3030 Plan and establish a groundwater management plan for the whole basin.

The Groundwater Management Act (California Water Code Part 2.75 Section 10753), originally enacted as Assembly Bill (AB) 3030 (1992) and amended by Senate Bill (SB) 1938 (2002), provides the authority to prepare groundwater management plans. The intent of AB 3030 is to encourage local public agencies and water purveyors to adopt formal plans to manage groundwater resources within their jurisdiction.

Within the scope of Water Code Section 10753.8, a local groundwater management plan can potentially include up to twelve technical components, although this IRWM Plan need not be restricted to those specific components. This IRWM Plan addresses all the relevant components related to Groundwater Management Plans in the Water Code, as well as the components recommended by the California DWR in California's Groundwater, Bulletin 118 (DWR, 2004). Nothing in this IRWM Plan will supersede or interfere with the pending adjudication of the Antelope Valley Groundwater Basin. Table 1-3 provides a checklist at the end of this section to indicate where in this IRWM Plan specific Groundwater Management Plan components are located.

1.3.5 Integrated Flood Management Planning

Integrated flood management (IFM) is an approach that varies from traditional flood protection by maximizing the efficient use of a floodplain while promoting public safety. IFM is a process that promotes an integrated, rather than fragmented, approach to flood management; and it recognizes the connection between flood management and water resources management, land use planning, environmental stewardship, and sustainability. Flood risk management balances current needs with future sustainability to enhance the performance of a watershed system as a whole.

The Region developed a set of comprehensive integrated flood management guidelines that identify the AV IRWM Region's flood protection needs. The guidelines prioritize opportunities to capture and utilize stormwater recharge in addition to mitigating flood impacts. The guidelines were developed in coordination with the Flood Management Committee formed from the AV IRWMP Stakeholder Group and AV RWMG. This group assisted with the technical development of the guidelines and provided recommendations for future flood management governance and funding strategies. Findings from this needs evaluation were then used to consider strategies for managing flood issues in the Region, and consider how flood management projects should be evaluated. A set of recommended actions for flood management in the Region was developed, including the recommendation that the Region take part in the National Flood Insurance Program (NIFP) Community Rating System (CRS) to better map the Region's flood plains, and become eligible for flood insurance discounts. Finally, an assessment of existing and potential flood protection activities versus water quality enhancement activities was completed in order to make recommendations for more integrated flood management. The findings of these tasks culminated in the development of the Integrated Flood Management Summary Document.

The Integrated Flood Management Summary Document is included with this Plan in Appendix F.

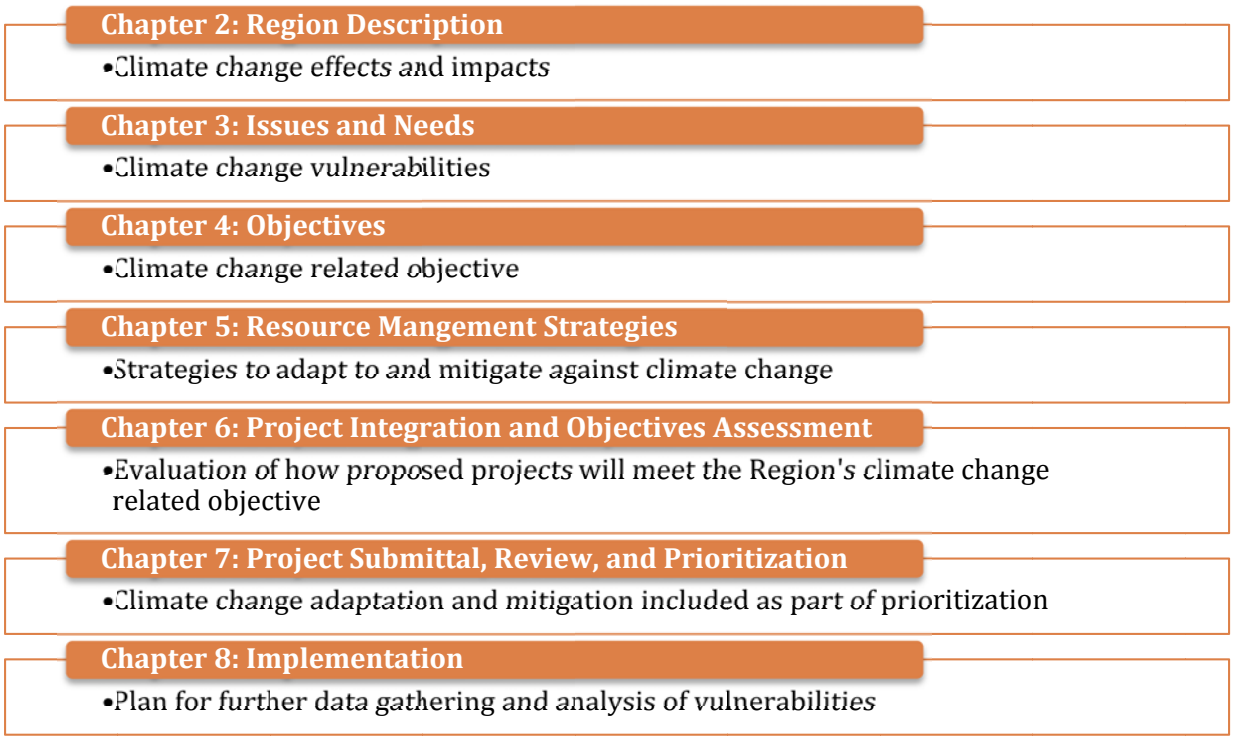
Table 1-3: Groundwater Management Plan Checklist According To Required Components

Required Components		
Items to Address	**Section of Law**	**Location in Plan**
Provide documentation that a written statement was provided to the public describing the manner in which interested parties may participate in developing the groundwater management plan.	10753.4(b)	Section 1.2.3
Provide basin management objectives for the groundwater basin that is subject to this IRWM Plan.	10753.7(a)(1)	Section 4
Describe components relating to the monitoring and management of groundwater levels, groundwater quality, inelastic land surface subsidence and changes in surface flow and surface water quality that directly affect groundwater levels or quality or are caused by pumping.	10753.7(a)(1)	Section 2 and Section 3
Describe plan to involve other agencies that enables the local agency to work cooperatively with other public entities whose service area or boundary overlies the groundwater basin.	10753.7 (a)(2)	Section 1 and Section 8
Adoption of monitoring protocols for the components in Water Code Section 10753.7(a)(1)	10753.7 (a)(4)	Table 8-4
Provide a map showing the area of the groundwater basin as defined by DWR Bulletin 118 with the area of the local agency subject to this IRWM Plan as well as the boundaries of other local agencies that overlie the basin in which the agency is developing a groundwater management plan.	10753.7 (a)(3)	Figure 2-3, Figure 2-4, Figure 2-10

1.3.6 Climate Change

As part of the update of this IRWM Plan, the Region incorporated climate change considerations into various chapters, as shown below in Figure 1-4.

Figure 1-4: Incorporation of Climate Change into the Antelope Valley IRWM Plan



A climate change committee was established in order to provide input on the Region's vulnerabilities and strategies for responding to climate change. Three meetings were conducted between September 2012 and November 2012 to vet climate change impacts, determine and prioritize vulnerabilities of the Region's water resources to climate change, assess strategies for responding to climate change and mitigating greenhouse gases (GHGs), incorporate climate change considerations into objectives and targets, and incorporate climate change adaptation and mitigation into the project prioritization process. Meeting agendas, notes, and presentation materials are available on the project website (www.avwaterplan.org).

1.3.7 Salt and Nutrient Management Plan

The AV IRWM Region is developing a regional Salt/Nutrient Management Plan (SNMP) to manage salts and nutrients from all sources within the basin to maintain regional water quality objectives and support beneficial uses. The SNMP was developed under the guidance of the SNMP committee who are active participants in the IRWM stakeholder group. A copy of the draft SNMP can be located in Appendix G, and is available on the www.avwaterplan.org website.