



Section 8 | Implementation

This section develops a comprehensive implementation plan for the IRWM Plan. The objectives of this section are to describe how the governance structure of the Region operates now and in the future, develop a financial plan for implementation of the Plan and projects selected as implementation projects, describe how the Region will manage and report data, describe the technical information used in developing this plan and data gaps found, identify a means for monitoring progress in meeting Plan objectives, and describe how the Plan will be updated and maintained throughout the planning horizon.

8.1 Framework Introduction

This subsection discusses the agencies and stakeholders that develop plans or participate in the development of plans in the Antelope Valley Region, and it identifies the different scales at which planning occurs. How local agencies and stakeholders choose to link regional water issues and challenges with the IRWM Plan priorities, strategies, and objectives noted in Section 4; combine water management strategies; or determine which specific activities should occur for any specific water management strategy may vary based on the scale of planning. It is within this framework that the stakeholders intend to move toward the shared resource management objectives, following a course of greater integration and coordination of water projects and programs in the Region.

8.1.1 Existing Plans and Programs

A substantial number of federal, state and local/regional agencies and jurisdictions are responsible for, or participate in, the development and implementation of plans and programs that satisfy the resource management strategies developed earlier in this report.

Land use decisions have the potential to affect the resource management strategies utilized in the AV IRWM Plan, as land use can affect population growth, water demand, and surface water quality. The implementation of stormwater capture projects may require acquisition of land which could displace existing uses and may warrant consideration of modifications to land use policies and practices. In addition, the passage and implementation of water conservation or floodplain

management ordinances can further address IRWM Plan objectives. In developed areas, the land use decision makers are primarily the cities and the counties. In open space areas, the Forest Service, National Park Service, and California State Parks have regulatory responsibility for the conservation and preservation of those spaces. Additionally, many ‘open spaces’ in the Antelope Valley Region are undeveloped rural lands under Los Angeles and Kern County jurisdiction. All of these agencies and jurisdictions have been involved in the AV IRWM Plan as part of the stakeholder process, or are active members of the Antelope Valley RWMG (e.g., cities and counties).

The stakeholder process allows for interactive feedback to occur between local land use and water resources planning, and regional IRWM Plan planning. Local planning is conducted by cities, counties, and local agencies and districts. Most of the cities and counties in the Antelope Valley Region have participated either directly, or through the participation of a regional representative. Through the stakeholder workshops, the cities, counties and municipal agencies have advocated for their respective local planning needs and issues, which have been incorporated into the IRWM Plan through stakeholder feedback and project solicitation. Subsequently, the outcomes from the AV IRWM Plan process have been disseminated by the representatives back to their local decision makers, allowing the IRWM Plan priorities, objectives and planning targets to be considered in local planning efforts where appropriate. For example, the Los Angeles County General Plan is currently being updated (to be completed in 2014), and as appropriate, the AV IRWM Plan can be used to inform that process in areas related to water resource management.



Through the stakeholder workshops, the cities, counties and municipal agencies have advocated for their respective local planning needs and issues, which have been incorporated into the IRWM Plan through stakeholder feedback and project solicitation. Subsequently, the outcomes from the AV IRWM Plan process have been disseminated by the representatives back to their local decision makers, allowing the IRWM Plan priorities, objectives and planning targets to be considered in local planning efforts where appropriate. For example, the Los Angeles County General Plan is currently being updated (to be completed in 2014), and as appropriate, the AV IRWM Plan can be used to inform that process in areas related to water resource management.

Given this, numerous plans and studies related to water resources and land use management in the Antelope Valley Region have contributed to the development of the IRWM Plan. Thus, the AV IRWM Plan has been developed from and is consistent with local planning efforts in the Antelope Valley Region shown in Table 8-1.

8.2 Governance Structure

Governance structure means “decision-making” structure or management structure. As described in Section 1, the RWMG uses a governance structure established through an MOU that prescribed the roles and responsibilities for the RWMG. The MOU identifies how the RWMG will incorporate new members. When approved by all parties, new members may join the RWMG by adopting the IRWMP and executing the MOU. The MOU also states that, when appropriate, new members may pay a reasonable financial contribution as the existing RWMG members shall determine. The MOU intentionally does not identify a level of financial contribution for each member. Any action of the RWMG requiring funding from the members, including updates to the IRWMP, public noticing, and preparation of grant applications, will require a separate agreement approved by the governing boards of each respective member.

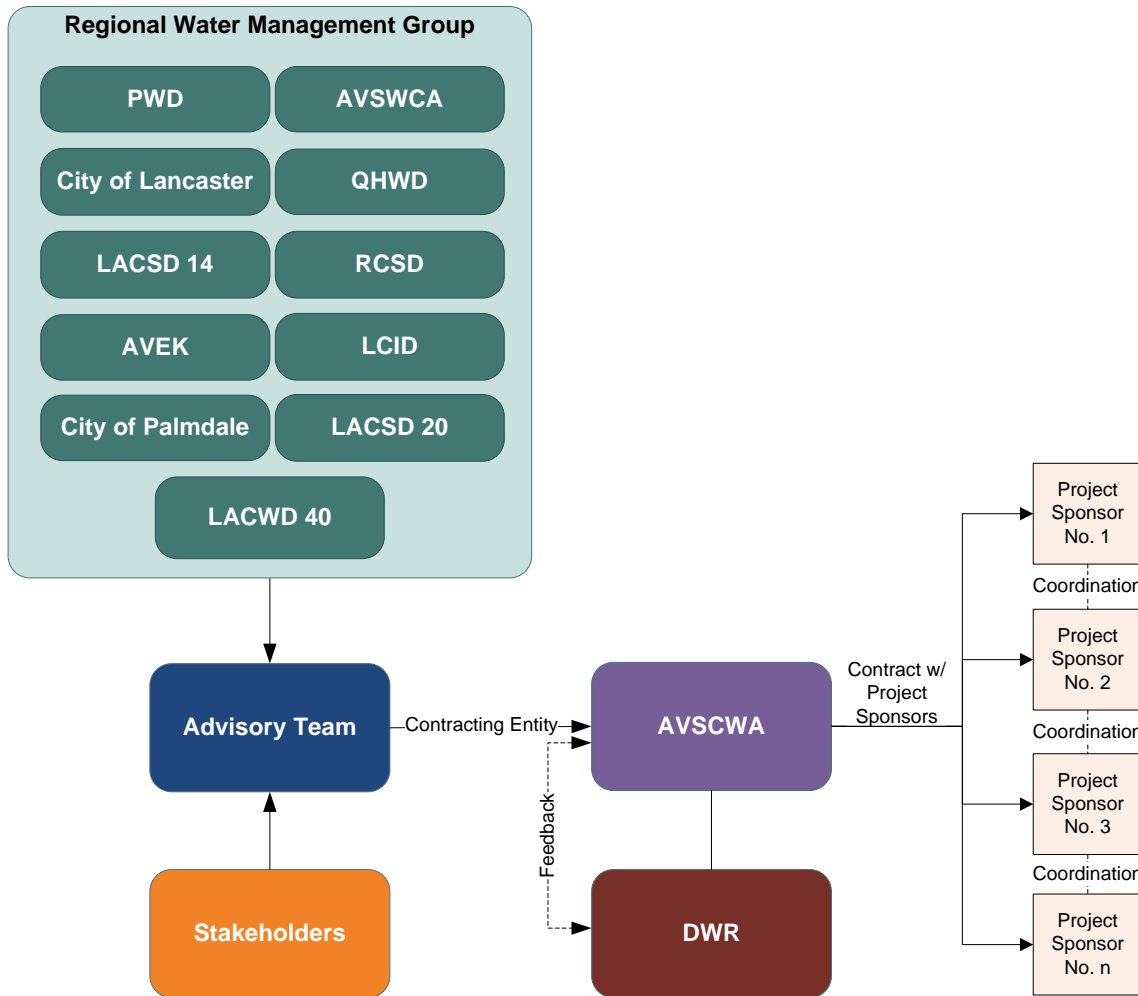
As shown in Figure 8-1, the RWMG is the governing body, and invites stakeholder involvement beyond the MOU signatories through regularly scheduled stakeholder meetings and participation in the Advisory Team and subcommittees. The RWMG has engaged a balance of interested persons or entities representing sectors or interests by conducting all business in consultation with the larger Stakeholder Group in meetings which are open to the public. The Stakeholder Group includes all participants within the IRWMP process including 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. Any interested person may participate in Stakeholder meetings and provide input. The Stakeholder Group meets at least once per quarter (i.e., 4 times per year) to review progress on IRWMP implementation and to consider updates to the IRWMP (such as newly proposed projects or management actions that address the Regional Plan objectives).

Table 8-1: IRWM Plan Relationship to Local Planning Documents

Planning Document	Jurisdiction	Relationship to IRWM Plan	Updates
General Plans	Land use and zoning	Include land use and zoning information, significant ecological areas and growth projections for Antelope Valley cities and counties.	As needed
Lahontan Regional Water Quality Control Board Basin Plan	Water quality	Includes water quality information on local surface waters such as 303(d) listings, beneficial uses, non-point source pollution, and total maximum daily loads.	As needed
Urban Water Management Plans	Water supply	Provides current and 25-year projected water supply and demand, drinking water supply/quality issues, population and facilities	Every 5 years
State Water Project Reliability Report	Water supply	Contains information on projected reliability of imported water from the Delta.	Every 5 years
Groundwater Adjudication Documents	Water supply	Includes information on ongoing proceedings to adjudicate Antelope Valley groundwater, including historical pumping patterns, conditions of overdraft, and total sustainable yield.	As needed
Recycled Water Facilities Plans (Lancaster, Palmdale, Palmdale Water District, Rosamond Community Services District, LA County Waterworks District 40)	Water supply	Includes information on current and projected available recycled water supply and plans for future recycled water system expansion.	As needed
2009 California Water Plan	Water resources planning	Includes statewide discussion of water resources in California, including resource management strategies, strategic planning, and regional discussions.	Every five years
Species Recovery Plans	Habitat	Contains information on the locations of habitats of local endangered species.	As needed
Water Reclamation Plant Facilities Plans	Wastewater planning	Includes information on current and projected available recycled water supply and plans for future water reclamation plant expansion.	As needed

Figure 8-1: Antelope Valley IRWM Governance Structure



The RWMG has agreed to evaluate the effectiveness of the Region’s governance structure periodically, and to explore additional options for governance structures for integrated regional water management in the Antelope Valley if needed. The following discussion provides additional detail on how the Region’s governance structure performs various activities.

8.2.1 Public Involvement Process

The Region encourages public involvement in both the IRWM Plan development process and implementation process. The regional planning and public involvement process, described in Section 1, provided useful, broadly accepted information that supported development of the IRWM Plan Update. The public is encouraged to participate in the implementation of the updated IRWM Plan. To ensure continued participation, the Region will continue to hold regular stakeholder meetings open to the public. These meetings will allow the Region to accept project proposals on an ongoing basis, to continue to reach out to DACs, and to provide technical assistance when needed. DACs will be continually represented in the Stakeholder group so that the AV IRWM Plan will address the diverse issues and needs of the Antelope Valley Region.

8.2.2 Effective Decision Making

The RWMG has operated since its inception using a systematic approach called “facilitated broad agreement.” Whenever a decision needs to be made, the discussion between the RWMG members and the Stakeholder Group is facilitated until all members come to a consensus on an acceptable course of action.

8.2.3 Balanced Access and Opportunity for Participation

The Region’s planning efforts involve a diverse group of people with differing expertise, perspectives and authority of various aspects of water management to ensure balanced access and opportunity for participation. The RWMG itself is composed of various entities that represent water suppliers, wastewater service providers, land-use managers, flood managers, parks and recreation service providers, and environmental services. The Region’s stakeholders represent a diverse group of entities that actively participate in regular stakeholder meetings and other IRWM program related activities, as described in Section 1.2.2.

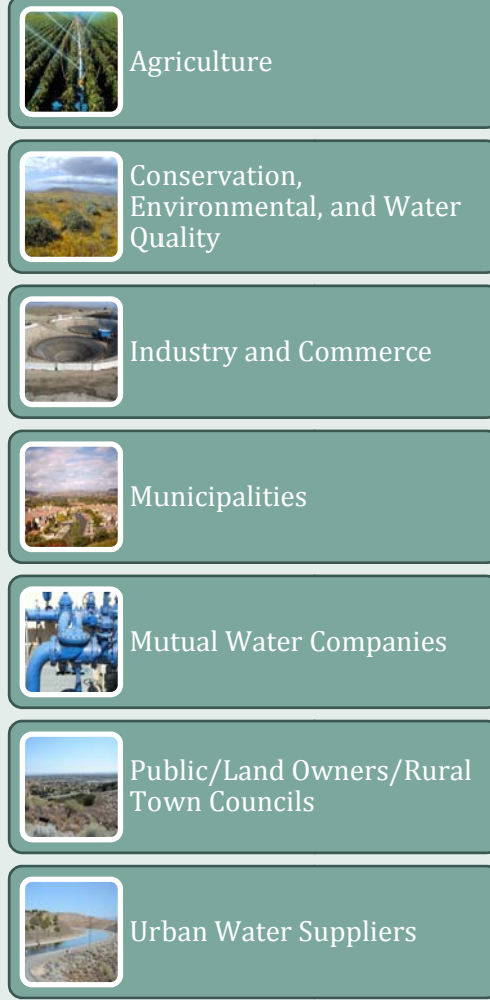
Meeting materials for the Plan Update were developed by a consultant team in cooperation with RWMG members and other stakeholders, and made available for review and comment by the stakeholders. In addition to this, the Region has formed various subcommittees which stakeholders can participate in to provide further input, including the advisory team, a public outreach subcommittee, a DAC subcommittee, a flood management subcommittee, a SNMP subcommittee, and a climate change subcommittee. These are described below.

8.2.3.1 Advisory Team

The MOU created an Advisory Team (A-Team) to provide focused initiative and effort to implement the IRWM Plan. The A-Team is not a decision-making body but is responsible for tasks such as:

- Organizing stakeholder meetings
- Maintaining the AVIRWM Plan website
- Identifying grant opportunities for which the RWMG or its members may apply
- Developing a list of short-term implementation objectives for consideration and approval by the RWMG and stakeholders¹
- Maintaining a list of long-term implementation objectives for the RWMG to address and update at stakeholder meetings
- Recommending an annual scope and budget for the RWMG

Figure 8-2: Advisory Team Interest Representation



¹ This task was completed when the first IRWMP was developed in 2007.

- Drafting agendas and preparing minutes for stakeholder meetings;
- Distributing information to stakeholders

The A-Team includes seven members selected by the Stakeholder Group to serve a three year term, and represent the categories of water-related interests shown in Figure 8-2.

The current list of A-Team seats and active members is maintained on the www.avwaterplan.org website.

8.2.3.2 Public Outreach Subcommittee

The Public Outreach Subcommittee was formed in order to provide public outreach for the Region's IRWM Program. This subcommittee is responsible for:

- Assisting with community events
- Assisting with outreach presentations
- Assisting with public notices
- Collaborating with DAC outreach

These responsibilities have largely been assumed by the A-Team, but all stakeholders are invited to participate in this subcommittee. This subcommittee provides recommendations to the stakeholder group and RWMG for inclusion of the above items in the IRWM Plan Update and reporting on public outreach activities as needed at stakeholder meetings. There is no limit to the term of service for serving on this subcommittee.

8.2.3.3 DAC Subcommittee

The DAC Subcommittee was formed in order to encourage participation by DACs in the IRWM Program and to solicit feedback in DAC-related issues. This subcommittee was responsible for:

- Helping coordinate DAC meetings
- Assisting with outreach discussions
- Reviewing technical memorandums related to DAC water supply and water quality needs
- Collaborating with the Public Outreach subcommittee

All stakeholders were invited to participate in this subcommittee through the duration of the IRWM Plan update process. This subcommittee provided recommendations to the stakeholder group and RWMG for inclusion of these items in the IRWM Plan Update and reporting on DAC outreach activities, and it will only meet as needed to incorporate additional DAC related information into subsequent IRWM Plan updates.

8.2.3.4 Flood Subcommittee

The Flood Subcommittee was formed in order to incorporate integrated flood management concepts into this Plan Update. This subcommittee was responsible for:

- Participating in flood/stormwater discussions related to existing flood plans, flood needs, project priorities, multiple-benefits, stormwater quality, NFIP, and FloodSAFE
- Reviewing technical memorandums related to existing flood plans, flood needs, project priorities, multiple-benefits, stormwater quality, NFIP, and FloodSAFE

All stakeholders were invited to participate in this subcommittee through the duration of the IRWM Plan update process. This subcommittee provided recommendations to the stakeholder group and RWMG for inclusion of these items in the IRWM Plan Update, and it will only meet as needed to incorporate additional flood related information into subsequent IRWM Plan updates.

8.2.3.5 Climate Change Subcommittee

The Climate Change Subcommittee was formed in order to incorporate climate change projections and impacts into this Plan Update. This group was responsible for:

- Reviewing and vetting projected effects and impacts of climate change
- Determining and prioritizing the Region's climate change vulnerabilities
- Assessing strategies for responding to climate change
- Developing climate change related objectives and targets

All stakeholders were invited to volunteer to participate in this subcommittee through the duration of the IRWM Plan update process. This subcommittee provided recommendations to the stakeholder group and RWMG for inclusion of these items in the IRWM Plan Update, and it will only meet as needed to incorporate new climate change related information into subsequent IRWM Plan updates.

8.2.4 Communication

The Region's IRWM program fosters communication with various functional groups both within the Region and outside the Region. Communication among the Region's stakeholders (including RWMG representatives, governmental agencies, project proponents, general stakeholders, and neighboring RWMGs) regarding the IRWM program typically occurs through email notifications, announcements posted to the Region's website (www.avwaterplan.org), public presentations, stakeholder workshops, subcommittee workshops and A-Team meetings. In addition, several one-on-one meetings were conducted in support of this IRWM Plan update to encourage participation by DACs (see Section 1 for additional information regarding DAC outreach), develop projects, and evaluate regional needs and issues (e.g., groundwater adjudication).

8.2.5 Long-term Implementation of the IRWM Plan

The Antelope Valley IRWM Program is committed to ensuring long-term implementation of the IRWM Plan to ensure sustainability of the Region's water supply, water quality and natural resources. All interested stakeholders will continue to be invited to participate in IRWM program meetings and planning efforts. The Region's MOU reflects the commitment to ensure long-term implementation of the IRWM Plan given that the MOU signed by each RWMG member does not expire for 20 years after the date of execution (i.e., January 2027).

It is expected by the stakeholder group that each member of the RWMG will adopt the 2013 IRWM Plan Update in early 2014. Project proponents who plan to submit grant funding applications are also encouraged to adopt the 2013 IRWM Plan Update prior to the grant application deadline. Other members of the stakeholder group may also adopt the Plan.

8.2.6 Coordination with Neighboring IRWM Efforts, State Agencies, and Federal Agencies

The Region's governance structure allows for coordination with neighboring IRWM Regions, State Agencies, and Federal Agencies. Representatives from neighboring IRWM regions, state agencies, and federal agencies are included in the Region's email list to receive meeting notifications and updates on IRWM program activities. When necessary, the Region coordinates directly with neighboring IRWM efforts and state and federal agencies by electing an appropriate RWMG or A-Team member to represent the Region. In the past, the Antelope Valley Region has coordinated with the Mojave IRWM and Kern IRWM Regions on regional boundary overlaps and city and agency overlaps for the Region Acceptance Process. The Antelope Valley Region has also coordinated with

the Mojave, Inyo-Mono, and Tahoe-Sierra Regional on potential fund-sharing ideas within DWR's Lahontan funding area.

Additionally, the Region coordinates with state and federal agencies on grant and planning efforts by electing appropriate representatives. For example, the RWMG selected the AVSWCA to interface with DWR for the Proposition 84 grant efforts. Grant administration includes the ability to receive and administer funds to the awarded sponsored projects, to prepare the necessary progress reports and invoicing reports, to make investigations, and to execute, and file such documents and agreements with DWR as required.

8.2.7 Changes and Updates to the IRWM Plan

The AV IRWM Plan is a dynamic planning document. Given that the Region will continue the IRWM Program into the future, it will be possible to perform interim and formal changes to the IRWM Plan in response to changing conditions, and/or update or amend the IRWM Plan as needed. Should a change in the Region's water resources occur, stakeholders will have the opportunity to provide feedback at stakeholder meetings where the A-Team will determine necessary action items.

The AV IRWM Plan at a minimum will be updated every five years² as further study and planning is conducted, projects continue to be developed and objectives and priorities are adjusted. There will be an ongoing process for keeping the proposed project list up-to-date through regular quarterly updates with additional meetings. Revisions to the project list will be made as needed before major grant applications, as conditions change, as funding is identified, as projects are implemented, and as objectives are revised. The process for revising the project list is detailed in Section 7.

8.2.8 Future Governance Structure

Though no changes were made to the existing governance structure since 2007, in the future, the Region may consider formation of a JPA to replace the MOU. A JPA is formed when it is to the advantage of two or more public entities (e.g., utility or transport districts) with common powers to consolidate their forces to acquire or construct a joint-use facility. Their bonding authority and taxing ability is the same as their powers as separate units. A JPA is distinct from the member authorities, as they have separate operating boards of directors, yet these boards can be given any of the powers inherent in all of the participating agencies. In setting up a JPA, the constituent authorities must establish which of their powers the new authority will be allowed to exercise. A term and the membership and standing orders of the board of the authority must also be laid down. The joint authority can employ staff and establish policies independently of the constituent authorities. A prominent JPA in the Antelope Valley Region is the AVSWCA, formed in May 1999 by the three local SWP contractors of the Antelope Valley.

8.3 Funding and Financing of the IRWM Plan

Funding and financing needs for implementation of the IRWM Plan falls into the three categories of IRWM program, projects, and planning, as shown in Figure 8-3. IRWM Program activities meet the most basic requirements necessary for the Region to exist and implement the Plan according to DWR standards. These activities include outreach/communication activities discussed in Section 1 and 8.2 (e.g., website maintenance, email list and notifications management, participation in the public outreach subcommittee), data management activities discussed in Section 8.4, governance activities discussed in Section 8.2 (e.g., A-Team and stakeholder meeting preparation and attendance, program administration), and regular plan updates every 5 years.

² The 2007 IRWMP originally said that updates would be completed every two years. This has been adjusted to every five years in this 2013 IRWMP Update to coordinate with UWMP updates and SNMP updates.

Figure 8-3: Antelope Valley IRWM Financing Needs

IRWM Program	Projects	Additional Planning
<ul style="list-style-type: none"> • Outreach/communication • Plan performance • Data management • Governance • Plan updates (every 5 years) 	<ul style="list-style-type: none"> • Project review • Project prioritization • Grant application preparation • Grant management • Project implementation • Project O&M 	<ul style="list-style-type: none"> • Regional planning needs • More frequent Plan updates

Activities related to the Region's projects include project review and prioritization (discussed in Section 7), grant application preparation and management (which the Region intends to continue), project implementation, and project operations and maintenance (O&M). Additional planning activities in the Region beyond IRWM and project activities allow the Region to further enhance regional planning and coordination activities. Since these additional planning activities are not required, the resources dedicated to them would be discretionary and only provided after the IRWM and project related activities are funded. Additional planning activities may include implementation of plans and studies in response to regional needs such as preparing a Region-wide watershed management plan or a groundwater master plan and more frequent Plan updates.

8.3.1 Funding/Financing Options

To meet the resource needs identified above, the Region will need to secure funding as both in-kind services and monetary resources. Potential funding sources and methods include:

- Sources
 - Ratepayers
 - Operating Funds
 - Water Enterprise Funds
 - Assessments/Fees/Taxes
 - Loans/Grants
 - Bonds
- Methods
 - In-Kind Time
 - Annual Dues
 - As-Needed Assessments
 - Grants/Loans

Given that local revenue sources will not be sufficient to fully fund all aspects of the IRWM Program's financing needs over the 20-year planning horizon, the Region intends to fund its activities using a combination of local, state and federal funds. The following is a program-level description of the sources of funding which will be utilized for the development and ongoing funding of the IRWM Plan; and it includes potential funding sources for projects that implement the IRWM Plan, including project O&M costs.

Local Financing

Local in-kind services provided by representatives of the Region's RWMG, A-Team and Stakeholder Group are the most important resource used by the Region. All of the Region's governance,

outreach, communication, data management, plan review, plan performance and project development work is contributed as in-kind services. The capability of these entities to continue to dedicate staff resources for implementation of the IRWM Plan is critical to the Region's success.

In addition to in-kind services, members of the RWMG will continue to contribute funds to the Region as defined in the MOU, and provide local funds to finance projects included in the IRWM Plan. While existing funding mechanisms are in place for development of water supply and wastewater facilities and operation and maintenance of these facilities, the funds may not be sufficient to achieve the planning targets described in Section 4 of this IRWM Plan Update. It will be necessary for local agencies to implement additional local funding measures and/or pursue state and federal opportunities to fully fund implementation of the Plan.

O&M costs for specific implementation projects in this IRWM Plan will be funded by the project proponents/agencies from ratepayers, operating funds, water enterprise funds, assessments, fees, and taxes. The certainty of O&M funding is dependent on the particular project and project proponent. Additional detail on O&M costs may be found in Appendix K.

State Financing

The Region has pursued funding to implement projects in its IRWM Plan in the past, including grant opportunities through Propositions 50, 84 and 1E. The Region will continue to evaluate and apply for state funding opportunities such as the Proposition 84, Round 3 grant program for IRWM Plan project implementation and state revolving fund (SRF) loans. The Region will also participate in opportunities to provide leadership on statewide funding measures such as statewide discussions regarding the future of the IRWM Program and discussions on the language of future funding measures.

Federal Financing

Local agencies may seek federal funding opportunities to fund projects as they become available.

8.3.2 Funding/Financing Plan

Table 8-2 shows the Region's funding and financing plan to achieve the IRWM Program O&M and Project activities discussed above. Note that additional planning needs are not included here as they have not been determined at this time.

Table 8-2: IRWM Plan Financing Plan

Activity	Approximate Total Cost	Sources and % of Total Cost	Funding Certainty/Longevity	Assumptions
IRWM Program				
Outreach/communication	48 hours/year \$5,000/year	<i>In-kind</i> 100% RWMG agencies and/or A-Team members <i>Funds</i> 100% RWMG agencies	Contingent on ongoing agency staff allocations MOU program fund sharing in place for 20 years from date of execution	<ul style="list-style-type: none"> 4 hours/month for regular communication to stakeholder group = 48 hours/year \$5,000 per year to maintain program website
Plan performance	24 hours/year	<i>In-kind</i> 100% RWMG agencies and/or A-Team members	Contingent on ongoing agency staff allocations MOU program fund sharing in place for 20 years from date of execution	<ul style="list-style-type: none"> 24 hours/year (completed on annual basis by A-Team or subcommittee)
Data management	120 hours/year	<i>In-kind</i> 100% RWMG agencies and A-Team members	Contingent on ongoing agency staff allocations MOU program fund sharing in place for 20 years from date of execution	<ul style="list-style-type: none"> 10 hours/month = 120 hours/year
Governance	760 hours/year	<i>In-kind</i> 100% RWMG agencies and A-Team members	Contingent on ongoing agency staff allocations MOU program fund sharing in place for 20 years from date of execution	<ul style="list-style-type: none"> Stakeholder meeting attendance: 6 meetings/year * 4 hours * 25 attendees = 600 hours Program administration: 8 hours/month = 96 hours/year A-Team meeting attendance: 4 meetings/year * 2 hours * 8 attendees = 64 hours/year
Plan update: stakeholder review and consultant assistance	128 hours/update \$500,000/update	<i>In-kind</i> 100% RWMG agencies and A-Team members <i>Funds</i> 50% RWMG agencies 50% State grant funds	Contingent on ongoing agency staff allocations MOU program fund sharing in place for 20 years from date of execution Contingent on success in obtaining future grant funds for IRWM planning	<ul style="list-style-type: none"> Stakeholder review of plan update: 4 reviewers/section * 8 sections * 4 hours/section = 128 hours/update Consultant assistance with plan update: \$160,000/update

Activity	Approximate Total Cost	Sources and % of Total Cost	Funding Certainty/Longevity	Assumptions
Projects				
New projects: Initial review and prioritization, and stakeholder approval of new projects	12 hours/year	<i>In-kind</i> 100% RWMG agencies and A-Team members	Contingent on on-going agency staff allocations MOU program fund sharing in place for 20 years from date of execution	<ul style="list-style-type: none"> Initial review and prioritization of new projects: 7 person* 2 hours/year = 14 hours/year A-Team and stakeholder approval of new projects: 0 hours (approval will occur at regular stakeholder and A-Team meetings)
Grant application preparation	40 hours/project application \$20,000/project application	<i>In-kind</i> 90% Project proponents 10% Program manager <i>Funds</i> 100% project proponents or RWMG	Contingent on on-going agency staff allocations MOU program fund sharing in place for 20 years from date of execution	<ul style="list-style-type: none"> Project proponents: 40 hours/project application Consultant assistance: \$20,000/project application
Grant management	620 hours/year	<i>In-kind</i> 25% Project proponents 75% Program manager	Contingent on continued success in grant programs.	Program manager: 40 hours/month = 480 hours/year Project proponent reporting: 12 hours/month = 144 hours/year
Project implementation	Between \$70 million and \$80 million capital costs Between \$1 million/year and \$2 million/year O&M costs	<i>In-kind</i> 100% Project proponents <i>Funds</i> 25% Project proponents 75% State grant assistance	Contingent on on-going agency staff allocations and agency funds. Contingent on continued success in grant programs.	Total capital and O&M costs for implementation projects that have provided cost estimates

8.4 Data Management

This section discusses the importance of collecting, managing, disseminating and utilizing data to create a sustainable integrated plan. A comprehensive data management approach will help to quickly identify data gaps, detect and avoid duplication, support regional data collection, and integrate with other regional and statewide programs.

A wide variety of information is necessary to effectively manage water. The kinds of data needed include information regarding water quality, quantity, population demographics, climate and rainfall patterns, treatment plant effluent, habitat locations and needs, water costs, and more. Data is vitally important to agencies trying to maximize operating efficiency and design projects with

limited budgets. The types of data available, current relevance and trends, and knowledgeable people that can interpret the data are all important. Equally important is the opportunity for Federal and State agencies to view local data for their own monitoring needs and to better understand local conditions.

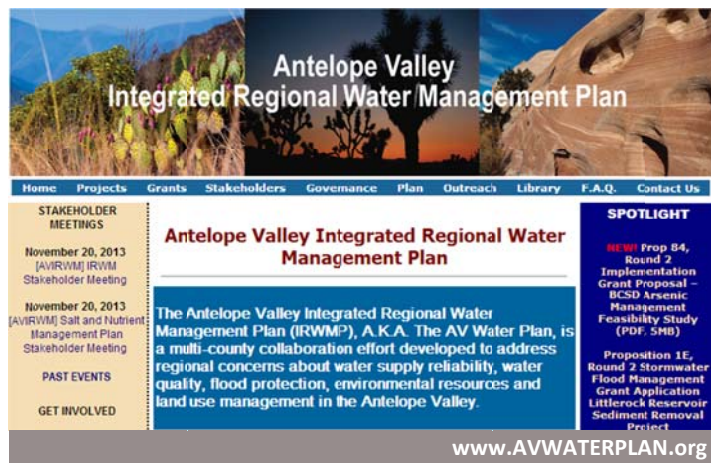
The collection, management, dissemination and utilization of data (e.g., information gathered from studies, sampling events, or projects) are essential elements to creating a sustainable integrated plan. Information needs to be available to regional leaders, stakeholders, and the public to facilitate effective planning and decision-making.

As part of this IRWM Plan, the data management strategies described below will be applied to coordinate data collection between implementation projects, leverage existing data available from ongoing statewide and regional programs, provide timely data to stakeholders and the public, and consolidate information to be used in other state programs. These strategies are explained in more detail below.

8.4.1 Management and Data Reporting

Dissemination of data to stakeholders, agencies, and the general public is integrated into the AV IRWM Plan process to ensure overall success. A requirement of the Proposition 84 Guidelines is the routine reporting on project performance. The routine collection of this data naturally lends itself to the routine collection and reporting that is required as part of the AV IRWM Plan process. The AVSWCA, as the grant contracting entity, will compile the reporting of this IRWM Plan and work individually with the project proponents to receive updates on individual project progress. A standardized reporting format will be created which the AVSWCA could use to compile this data, which will then be uploaded to the project website described in more detail below. Data collected or produced as part of the AV IRWM Plan will then be presented and disseminated during bi-monthly stakeholder meetings.

A public website has been created to store data and information about the AV IRWM Plan process so that the public can find information about public meeting dates, agendas, and notes. The website provides information on the AV IRWM Plan process and posts annual reports and relevant documents. Data collected during the AV IRWM Plan process is available on the website as well. The website also provides links to other existing monitoring programs to promote data sharing between these programs and the AV IRWM Plan. This provides a means to identify data gaps (e.g., information needed to provide a more complete assessment of the status of a specific issue or program) and to ensure that monitoring efforts are not duplicated between programs.



The AV IRWM Plan website, www.avwaterplan.org, provides a mechanism for stakeholders to upload project information regarding water supply, water quality, and other benefits of projects which will be collected in a database to manage, store, and disseminate information to the public. A data collection template will be available on the website in the future so that data collected during the AV IRWM Plan can be stored and managed in a consistent format. This template will be

compatible with those used in state databases, discussed further in subsection 8.4.4. The Region expects that project proponents will ensure the quality of their data prior to upload to the IRWM Plan website.

8.4.2 Regional Data Needs

This subsection identifies regional data needs including information required to evaluate the effectiveness of projects that produce non-traditional data.

As part of this IRWM Plan Update, data sets and reports were reviewed for their applicability to the Antelope Valley Region. This knowledge has provided the information necessary to identify data gaps which represent information crucial to a greater understanding of the Antelope Valley Region and help develop context for future projects (as discussed in Section 8.5 below). Data gaps identified through this IRWM Plan Update include:

- Water demands for users served by small, mutual water companies or private well owners
- Actual agricultural pumping
- Detailed agricultural acreage by crop-type
- Outdoor versus indoor water use
- Consumptive use losses in the basin
- Consolidated regional data on groundwater levels and quality monitoring
- Consolidated regional data on flooding issues, including flood hazard mapping
- Flood mitigation needs identification
- Natural groundwater recharge
- Groundwater return flows (municipal & industrial, agricultural, agricultural reuse)
- Groundwater recharge loss due to septic removal
- Subsurface flow
- Stormwater beneficial use identification
- Water available for recovery from surface water runoff, particularly from Amargosa Creek
- Baseline embedded energy use and GHG emissions emitted by water resources related activities

It is recommended that additional monitoring and studies be conducted to fill in these data gaps.

In the future, the AV IRWM Region will also collect non-traditional data (i.e., summarizing the effectiveness of water conservation programs throughout the Antelope Valley Region) in a comprehensive way that can be a powerful contribution to statewide water management efforts. Comprehensive data collection and measurement of these efforts will provide leadership and guidance to growing metropolitan areas throughout California.

8.4.3 Existing Monitoring Efforts

This subsection will provide the existing surface and groundwater level and quality monitoring efforts in the Antelope Valley Region and will identify opportunities for additional monitoring and/or for partnership.

8.4.3.1 Surface Water

Surface water for the Region comes from the state aqueduct and Littlerock Reservoir. Water from the state aqueduct is monitored by both DWR and by local water purveyors receiving the water. Surface water from Littlerock Reservoir is monitored by PWD. Data on the quantity of surface water

in the Region is available through UWMPs and DWR reporting. See Section 8.4.3.2 below for a discussion of drinking water quality monitoring.

8.4.3.2 Drinking Water

Drinking water quality is monitored through the following means:

- **Safe Drinking Water Act (SDWA) compliance monitoring and reporting:** All public water systems are required to produce water that complies with the SDWA. To this end, specific monitoring information is required and conducted routinely. Results of the monitoring are reported to the California DPH. In addition, monitoring information is required to be published in the annual Consumer Confidence Report (also required by the SDWA).
- **Unregulated Contaminant Monitoring Rule Results:** The 1996 SDWA Amendments mandate that EPA publish a list of unregulated contaminants that may pose a potential public health risk in drinking water. This list is called the Contaminant Candidate List (CCL). The initial 1998 accounting listed 60 contaminants. USEPA uses this list to prioritize research and data collection efforts for future rulemaking purposes. The 1996 SDWA amendments incorporated a tiered monitoring approach. The rule required all large public water systems and a nationally representative sample of small public water systems serving less than 10,000 people to monitor the contaminants. The information from the monitoring program for the Antelope Valley Region will be compiled and submitted to the State as well as be available on the website.



8.4.3.3 Groundwater

AVEK and the USGS have coordinated groundwater monitoring efforts in the Antelope Valley Region for several years. Groundwater monitoring is also required in areas on and surrounding the EAFB as well as regional landfills. The Region's SNMP includes a groundwater monitoring component for tracking of groundwater quality with a focus on water supply wells and areas proximate to large water projects. These data will be reported to the CDPH, and compiled through the State's GAMA program.

8.4.4 Integration of Data into Existing State Programs

Data collected as part of this IRWM Plan can be used to support existing state programs such as:

- California Environmental Data Exchange Network (CEDEN)
- Water Data Library (WDL)
- California Statewide Groundwater Elevation Monitoring Program (CASGEM)
- Surface Water Ambient Monitoring Program (SWAMP)
- GAMA
- California Environmental Information Catalog (CEIC)
- Integrated Water Resources Information System
- California Environmental Resources Evaluation System (CERES)
- California FloodSAFE

To facilitate the integration of the Region's data with state databases, the Region's data collection templates discussed under subsection 8.4.1 will be compatible with state databases. The Region assumes that project proponents will ensure the quality of their data and that project proponents will upload their data to the appropriate state databases.

8.5 Technical Information

This subsection describes the technical information used in the development of the Plan Update which relied on an extensive list of plans, studies, and other documents and information sources. In addition, several technical memoranda were prepared to further study the Region's DAC and flood management related needs and develop a SNMP. These memoranda are included as Appendix D, F, and G, respectively. Table 8-3 provides a summary of the documents and data sources used, the method of analysis, the results derived, and how they were used in the 2013 Plan Update.

Table 8-3: Technical Information

Technical Information	Analysis Method	Results/Derived Information	Use in IRWM Plan	Reference or Source
Population Projections	Extracted 2010 populations using 2010 census block group data	2010 population estimates	Used to describe regional characteristics, estimate future demand	US Census Bureau, 2010. 2010 US Census statistics. Southern California Association of Governments, 2008. Adopted 2008 RTP Growth Forecast, by City.
	Extracted projected population information for Palmdale and Lancaster	Projected population increases between 2010 and 2035		
DAC identification	Extracted income information by census block group and place	Median household income	Used to identify DACs within the Region	US Census Bureau, 2011. 2006-2010 American Community Survey 5-year Estimates. RMC, 2013. Task 2.1.2 DAC Water Supply, Quality, and Flooding Data. Antelope Valley IRWMP 2007 Update.
Water Supply Projections	Reviewed 2010 urban water management plans	Water supply by source projected between 2010 and 2035 by water district	Used to project water supply availability for the Region, and identify water supply needs and issues	AVEK, 2011. 2010 Urban Water Management Plan. LCID, 2011. Annual CDPH Drinking Water Program Report. LACWD 40 and QHWD, 2011. 2010 Urban Water Management Plan. PWD, 2011. 2010 Urban Water Management Plan. RCSD, 2011. 2010 Urban Water Management Plan.

Technical Information	Analysis Method	Results/Derived Information	Use in IRWM Plan	Reference or Source
Urban Water Demand Projections	Review of 2010 urban water management plans	Projected total demand and per capita demand	Used with population projections to project demand for the Region	<p>AVEK, 2011. 2010 Urban Water Management Plan.</p> <p>LCID, 2011. Annual CDPH Drinking Water Program Report.</p> <p>LACWD 40 and QHWD, 2011. 2010 Urban Water Management Plan.</p> <p>PWD, 2011. 2010 Urban Water Management Plan.</p> <p>RCSD, 2011. 2010 Urban Water Management Plan.</p>
Agricultural Water Demand Projections	<p>Review of existing records of agricultural land use</p> <p>Estimation of crop evapotranspiration using Palmdale area ETo station</p> <p>Calculation of crop water requirements using ETo, crop types, crop area, historical rainfall</p>	Estimated crop water requirements for the Antelope Valley	Used to describe current water demands, and estimate future supply needs	<p>Hansen, B.R., et al. 2004. "Scheduling Irrigation: When and How much Water to Apply," Water Management Series Publication Number 3396, Department of Land, Air & Water Resources, University of California, Davis</p> <p>Pruitt, W.O., et al. "Reference Evapotranspiration (ETo) for California," UC Bull. 1922.</p> <p>CIMIS, 2012. Evapotranspiration Estimates. Palmdale Station 197 from Jan. to Dec. 2012.</p> <p>Los Angeles County Agricultural Commissioner, 2011. 2010 Crop Reports.</p>
Total Sustainable Yield	<p>Review of Antelope Valley groundwater basin adjudication documents</p> <p>Discussion with stakeholders</p>	Estimated range of the total sustainable yield of the Antelope Valley Groundwater Basin	Used to estimate groundwater supply availability	Appendix I documents

Technical Information	Analysis Method	Results/Derived Information	Use in IRWM Plan	Reference or Source
Groundwater Quality	Extraction of groundwater quality data by well for select constituents	Wells that exceed drinking water limits for select constituents within the Antelope Valley	Used to describe current groundwater quality, and determine drinking water quality issues and needs	SWRCB, 2013. GeoTracker GAMA. Groundwater Ambient Monitoring & Assessment Program. LACWD 40, 2013. Salt and Nutrient Management Plan for the Antelope Valley.
Regional Flood Needs	Review of existing records of localized flooding Review of FEMA flood zones	Locations of localized flooding Locations of 100 year flood zone	Used to determine flood infrastructure or management needs	RMC, 2013. Task 2.3.2 Flood Protection Needs. Antelope Valley IRWMP 2007 Update.
DAC water resources needs	Review of existing records supply availability, groundwater quality, and flooding records for DAC areas in Antelope Valley	Identified water supply, water quality and flood related needs in the DAC areas of Antelope Valley	Used to determine DAC related issues and needs.	RMC, 2013. Task 2.1.2 DAC Water Supply, Quality, and Flooding Data. Antelope Valley IRWMP 2007 Update.
SWP reliability	Review of DWR's State Water Project Reliability Report	Projected state water project deliveries under various hydrologic scenarios	Used to project imported water supplies under average year, singly dry year, multiple dry year scenarios.	DWR, 2011. State Water Project Reliability Report

8.6 IRWM Plan Performance

This subsection develops measures that will be used to evaluate Plan and project performance, monitoring systems that will be used to gather performance data, and mechanisms to adapt strategy implementation and operations based on performance data collected.

8.6.1 Performance Measures

Generally, the success of the AV IRWM Plan will depend on how well the individual plan objectives are accomplished. Achievement of all of these objectives will, in large part, determine the success of local integrated regional water management planning processes. Additionally, the success may be attributed to the AV IRWM Plan when individual projects meet their goals and objectives and help to cumulatively and positively address Regional plan objectives.

This IRWM Plan is a dynamic document, part of an ongoing local effort to achieve integration of local water management. The process, through stakeholder participation and plan revisions, will continue for many years and will be an effective mechanism for addressing the water management issues facing the Antelope Valley Region. On an ongoing basis, plan objectives and statewide priorities will be reviewed for relevance and modified as needed to ensure the overall IRWM Plan reflects changing needs and continues to be effective. Additionally, the projects identified for future implementation will be reviewed and evaluated periodically to ensure that current plan objectives will be met and that the proposed projects offer the greatest benefit possible. Periodically, a new set of projects will be developed to address plan objectives and State and regional priorities.

Performance measures for each of the planning targets discussed in Section 4 are addressed below. These measures are based on the AV IRWM Plan objectives and were developed to allow progress of the overall IRWM Plan to be measured. This section describes the monitoring methods and programs that will be used to collect data and the mechanisms by which this data will drive future improvements to projects and the AV IRWM Plan.

It is recognized that more detail is needed for a number of these performance measures in order for them to sufficiently be measured and implemented. Therefore, the Stakeholder group agrees to continue to refine these performance measures. The A-Team, in conjunction with a potential committee made up of stakeholder group members, will be taking primary responsibility for organizing the tracking and evaluation of IRWM Plan performance, though tracking of individual output indicators may be completed by different entities.

Water Supply Management Targets

Maintain adequate supply and demand in average years. Implementation of a project with a quantifiable benefit, either supply enhancement, or demand reduction with a known timeline for implementation or realization of the benefit will allow for measurement of this planning target. For example, on the demand management side, the performance of this planning target could be measured through the number of water conservation devices installed. Each agency participating in a water conservation program would maintain records of water conservation devices provided to customers for installation, such as ultra-low flush toilets (ULFT), high-efficiency clothes washers (HECW), rotary sprinkler nozzles (RSN), and weather-based irrigation controllers (WBIC). The number of water conservation devices provided on an annual basis would be recorded and the estimated water savings per unit determined through use of existing documentation and accepted methodologies, such as CUWCC worksheets, and would be submitted on a monthly or quarterly basis for inclusion in a central data management program as described in Section 8.4. The volume of recycled water produced will be monitored by the treatment plants and Wastewater Operations Reports maintained by the governing agency. Recycled water served to customers will be measured

and reported in water purveyor annual reports and in UWMPs every five years. This target will also be met by additional potable water produced and stored. Potable water served to customers will also be measured and reported in these ways. Annual precipitation data for groundwater and surface water conditions, total volumes of recycled water produced, potable water produced, and potable or recycled water stored will be recorded on a monthly or quarterly basis by the individual agencies managing the projects and included in the central data management program, as described in Section 8.4.

Provide adequate reserves (61,200 AFY) to supplement average condition supply to meet demands during single-dry year conditions, starting 2009. The performance of this planning target can be measured through monitoring the amount of water in reserve each year along with the volumes of groundwater banked and withdrawn quarterly. The cumulative total amount of water banked may also be recorded quarterly. As water is put into storage, the total mismatch and reduction in demand for meeting this single-dry year target volume would be recorded and included in the central data management program.

Provide adequate reserves (164,800 AF/4-year period) to supplement average condition supply to meet demands during multi-dry year conditions, starting 2009. The performance of this planning target would similarly be measured through monitoring the amount of water in reserve each year and by recording the volumes of groundwater banked and withdrawn quarterly, with the cumulative total amount of water banked also recorded quarterly. As water is put into storage, the total mismatch and reduction in demand for meeting multi-dry year conditions would be recorded and included in the central data management program..

Adapt to additional 7-10% reduction in imported deliveries by 2050, and additional 21-25% reduction in imported water deliveries by 2100. The performance of this planning target would be monitoring in the same way as the target above to reduce mismatch of expected supply and demand in dry and multi-dry years by providing new water supply and reducing demand, starting 2009.

Demonstrate ability to meet regional water demands over an average year without receiving SWP water for 6 months over the summer, by 2017. The ability to provide a diversity of water supply sources to meet peak demands over the summer without receiving SWP water can be measured by first refining the estimate of how much imported water is used during that time period and then comparing that number to how much water is available as an emergency supply or demand-reduction source. The total volume of water required during the 6-month peak summer period would be measured through monitoring SWP deliveries from AVEK, LCID, and PWD under current average conditions. Once the demand is determined, the current reserve supply can be quantified by measuring the total water supply available as emergency supply sources, such as banked water reserves, emergency transfer contracts, short-term paid non-use contracts, the maximum demand reduction that can be achieved through an aggressive water conservation program, and the overall storage capacity of recharge and extraction facilities. Annual total volumes would be recorded and included in a central data management program and the demand may be compared against the supply reserves to show whether there is sufficient supply (or potential to reduce demand) to accommodate the loss of SWP supply.

Manage groundwater levels throughout the basin such that a 10-year moving average of change in observed groundwater levels is greater than or equal to 0, starting January 2010. The ability to stabilize long-term groundwater levels in the region by showing groundwater recharge and extractions are in balance can be measured through monitoring groundwater levels through a GAMA Program well monitoring program, and recording volumes of groundwater pumped and banked. Groundwater levels should be monitored, at a minimum, on a quarterly basis

to account for seasonal variations. In order to sufficiently measure the performance of this planning target, a number of details about measuring need to be determined: the number of groundwater monitoring wells, which wells to be monitored, which subbasins to be monitored, who will collect the data, and how it will be coordinated. The data acquired through these monitoring efforts will be included in the central data management program.

It is assumed that a watermaster or other Court-appointed entity would be responsible for monitoring groundwater levels when the adjudication process has been completed.

Water Quality Management Targets

Continue to meet Federal and State water quality standards as well as customer standards for taste and aesthetics throughout the planning period. To measure the performance of this planning target, water quality will be tested in accordance with EPA and Consumer Confidence Reporting (CCR) Protocols and the data compared to adopted water quality standards such as California Drinking Water Standards established by the CDPH. If the measurements indicate that compliance is not being achieved, additional water quality monitoring of taste and odor causing compounds, such as geosmin (a compound found in soils that is responsible for the earthy, musty odor and taste in water) and algae could be undertaken. To monitor overall customer satisfaction and perceived taste and aesthetics, consumer input would be solicited at community fairs and in semi-annual mail-in surveys. The data acquired through these monitoring efforts will be recorded by the local water districts and agencies responsible for providing drinking water and included in the central data management program.

Prevent unacceptable degradation of aquifer according to the Basin Plan throughout the planning period. To preserve the acceptable quality of groundwater, with close attention paid to potential contaminants such as arsenic, nitrate, salinity and other problem pollutants, monitoring of groundwater quality would be undertaken, using GAMA Program methodology, as appropriate. The quality of groundwater in recharge zones will also be monitored to ensure that the non-impacting activities that help meet Basin Plan requirements are sited appropriately. These monitoring efforts would align with SNMP monitoring efforts. The difference between the baseline groundwater quality measured and the Basin Plan goals will be an indicator of plan performance. In order to sufficiently measure the performance of this planning target, a number of details about measuring need to be identified including, but not limited to: identification of sampling sites, establishing groundwater monitoring wells, the number of wells to be monitored, the frequency of monitoring, who will collect the data, and how it will be handled. The data acquired through the groundwater monitoring, as well as monitoring of areas where impacting activities are located near recharge zones, will be included in the central data management program.

Map contaminated and degraded sites and monitor contaminant movement, by 2017. Achievement of this planning target would be establishment of a process for identifying, mapping and monitoring contaminated sites. To measure program performance, general groundwater quality monitoring of the Region would be conducted to identify locations of contaminated sites and to support the establishment of a monitoring program in the problem area to document the change in contaminant plume over time and rate of migration. These monitoring efforts would align with SNMP monitoring efforts. Sites can be identified by reviewing historical land use to search for potential high risk uses including industrial, agricultural or military, as well as through databases listing known pollutant leaks, spills or contamination issues. Additional details needed for measuring performance include determination of water quality constituents of concern, the number of groundwater monitoring wells needed per site, the frequency of monitoring, who will map and collect the data, and how it will be recorded in the central data management program.

Identify contaminated portions of aquifer and prevent migration of contaminants, by 2017.

To prevent migration of existing contaminants to currently uncontaminated portions of the aquifer, groundwater quality monitoring will be used to collect data to determine the potential sources of contaminants and the drivers influencing migration, such as seasonal variation. These monitoring efforts would align with SNMP monitoring efforts. The data would be input into a database for continual monitoring and modeling, if required, to help evaluate management alternatives to prevent further migration. To measure the performance of this planning target, a number of details to be further defined include the identification of a groundwater modeling expert, determination of the number of groundwater monitoring wells needed, and identification of who will collect and incorporate the data into the central data management program.

Prevent unacceptable degradation of natural streams and recharge areas according to the Basin Plan throughout the planning period. To preserve the ecosystem health of current stream systems and groundwater recharge areas, the sources of flow that could carry contaminants would be measured through surface water monitoring efforts. Potential contamination sources and mechanisms and areas that need protection and additional monitoring would be identified using standard methods and procedures for water quality testing, such as GAMA Program methodologies, as appropriate. Additional information to be developed in support of this planning target include establishing groundwater monitoring wells, determining the number of wells to be monitored and how frequently, as well as identifying who would collect and disseminate the data for the central data management program.

Increase infrastructure and establish policies to use 33 percent of recycled water to help meet expected demand by 2015, 66 percent by 2025, and 100 percent by 2035. To increase the use of recycled water, and thereby reduce the demand on imported water or groundwater resources, the annual volume of recycled water produced and the annual volume of recycled water banked or delivered would be measured using flow meters. The recycled water infrastructure is already planned for expansion, as shown by the Los Angeles/Kern County Regional Recycled Water Project and the LACSD's tertiary treatment facility upgrades. Additional urban and agricultural recycled water users should also be identified through ongoing planning efforts. The data acquired through these monitoring efforts would then be included in the central data management program.

Flood Management Targets

Coordinate a regional flood management plan and policy mechanism by the year 2017 and incorporate adaptive management strategies for climate change. Development of a Regional Flood Management Plan and policy mechanism would require identification of data gaps related to flood management; preparation of detailed flood use maps for the Region; identification of policies to protect aquifers, natural streams and recharge areas from contamination in the area; and identification of flood management opportunities. The progress of this planning target would be measured by monitoring the progress of development of the plan on a section by section basis. The signing of an MOU (or other suitable governance structure) and the commitment of funds for the regional flood management plan would also be indicators of program performance. Progress would be included in the central data management program to ensure close coordination of efforts.

Environmental Resource Management Targets

Contribute to the preservation of an additional 2,000 acres of open space and natural habitat to integrate and maximize surface water and groundwater management by 2017. This planning target will be measured by recording the existing acres of open space and natural habitat and comparing those totals to the newly developed acres of open space and natural habitats created, restored or enhanced annually. The change between baseline acreage and new, measured open space and natural habitat created or preserved through community-based projects would be reported and included in the central data management program. A stakeholder process would further help to identify projects, create awareness for, or provide financial contributions towards the development of open space, and this information could be compiled and mapped for future project concepts or integration with other IRWM Plan projects.

Land Use Planning/Management Targets

Preserve 100,000 acres of farmland in rotation through 2035. To measure the economic health of the Agricultural community in the Region, and the land remaining in agricultural use, the existing acreage of agricultural land in rotation will be compared to the future, measured agricultural land in rotation. Landowners working would work with local water agencies in coordinated water banking rotation projects, and the resulting number of acres of farmland and the number of water resource projects that integrate agricultural land with irrigation practices would be indicators of progress. This data would be included in the central data management program.

Contribute to local and regional General Planning documents to provide 5,000 acres of recreational space by 2035. Providing low impact recreational opportunities for residents and visitors into the future will require the measurement of existing acreage of recreational space to compare against future acreage. A stakeholder process would contribute to the identification of community-based projects that could be developed to increase recreational space, and coordination with General Plan updates and policy directives would further build consensus. The annual acreages would then be included in the central data management program.

Coordinate a regional land use management plan by the year 2017 and incorporate adaptive management for climate change. Development of a Regional Land Use Management Plan would require identification of data gaps, preparation of detailed land use maps for the Region, identification of policies to protect and enhance land uses in the area, and identification of land use management opportunities. The progress of this planning target would be measured by monitoring the progress of development of the plan on a section by section basis. The signing of an MOU (or other suitable governance structure) and the commitment of funds for the regional plan would also be indicators of performance. Quarterly progress reports on the development of the plan would be included in the central data management program to ensure close coordination of efforts.

Climate Change Mitigation Target

Implement “no regret” mitigation strategies, when possible, that decrease GHG’s or are GHG neutral. To measure GHG reductions in the Region, the existing GHG emissions created through water resources management will be compared to the future GHG emissions created. Water purveyors would estimate the GHG emissions reductions created through the implementation of mitigation strategies, or the reduction of embedded energy used to imported water and associated GHG emissions. This data would be included in the central data management program.

Table 8-4 summarizes the project monitoring and program performance measures.

Table 8-4: Project Monitoring and Program Performance Measures

Desired Outcome	Output Indicators (measures to effectively track output)	Outcome Indicator (measures to evaluate change that is a direct result of the work)	Measurement Tools and Methods				Measurement to be Reported and Overall Reporting Guidelines	
			What needs to be measured:	How it should be measured:	Measurement/Reporting Frequency	Who should measure		
Maintain adequate supply and demand in average years.								
Supply and demand balance in average years (no mismatch) over the planning horizon	Update estimated supply and demand each year (for that year and future years) using similar approach to that used in the IRWM Plan including any updated information such as new population estimates, per capita use, etc.	<p>Create an “accounting table” that starts with the estimated mismatch from the IRWM Plan and report expected changes to the mismatch that would result from management actions (e.g., a groundwater banking project, a low flow toilet rebate program, etc.).</p> <p>This would allow quarterly reporting of expected adjustments to the mismatch based on project actions being implemented. In addition to accounting for the expected changes to the mismatch, require projects that are estimating increases in supply, or reductions in demand to track tangible metrics that demonstrate the progress they are making over time.</p>	Precipitation measurement to determine if it is an average, single dry or multiple dry year	Rain gauges in mountains and stream/run-off gauges for groundwater conditions and recharge estimates (still need to determine how many, where to place these, who will operate, and how to report the data.)	Daily/Annually	Western Regional Climate Center, EAFB	<p>Measurement to be reported: Total reduction in mismatch</p> <p>Reporting: Report quarterly with updates to regional board and compare against objectives</p>	
			ETo from CIMIS weather stations in Palmdale and Victorville.	Littlerock precipitation data for surface water conditions				
			Imported water delivered to AVEK, PWD, LCID, how much they deliver, and how much water is banked	Northern California conditions for imported water conditions				
			Inflows to and deliveries from Littlerock Reservoir (including water levels in reservoir, delivered water, spill over, and amount evaporated)	Annual Water Production Reports	Monthly/Quarterly			AVSWCA
			Amount of recycled water produced, delivered (by water use category), and banked (including quantity, timing, and location)	PWD	Monthly/Quarterly			PWD
			Population Projections	Wastewater Operations Reports flow meters at reuse sites	Monthly/Quarterly			LACSD
			M&I Demand	Census statistics SCAG population projections	Annually			Counties and cities
			Agricultural Demand	Recalculate the regional average per capita demand. Then use this number and the projected population estimates to calculate total demand.	Annually			Water purveyors
	Obtain annual agricultural acreage by crop type from LA and Kern County Agricultural Commissioners and calculate demand using the crop use requirements in the Plan.	Annually	Los Angeles County Farm Bureau, Kern County Farm Bureau					
	Update crop estimates with release of new data							
	(Use actual demand measurements when available.)							

Desired Outcome	Output Indicators (measures to effectively track output)	Outcome Indicator (measures to evaluate change that is a direct result of the work)	Measurement Tools and Methods				Measurement to be Reported and Overall Reporting Guidelines
			What needs to be measured:	How it should be measured:	Measurement/Reporting Frequency	Who should measure	
			Proposed/Actual amount of new water supply	All Projects: Estimated in 5-year intervals from project information <ul style="list-style-type: none"> Amount of water produced from project (operation records) Amount delivered from project (billing records) For projects with banking/ recharge element: monitored daily, reported monthly Overall Project injection, storage, and pumpback capacity Actual amount injected Actual amount pumped from bank Total amount in storage Percent remaining in storage to improve groundwater levels For Water Deals/Transfers: <ul style="list-style-type: none"> Amount agreed/allotted (water right) Actual amount transferred. 	Monthly/Quarterly	Project Proponents	
			Planned and actual reduction in demand	Proposed/Actual number of units installed/lines replaced/ rebates planned (est. water savings per unit from existing documentation such as CUWCC worksheets and methods for estimating water savings for various BMPs) Also need to consider impacts of demand reduction on wastewater inflows and recycled water availability. Should try to reduce outdoor use as much as possible.	Monthly/Quarterly	Project Proponents	
Provide adequate reserves (61,200 AFY) to supplement average condition supply to meet demands during single-dry year conditions, starting 2009.							
Establish a mechanism to dedicate supply in groundwater for dry year use. Start banking water in average year conditions to meet the expected quantity by 2009 and beyond.	Amount of water in reserve each year.	Amount of water banked and withdrawn quarterly and a cumulative total in bank quarterly.	Amount of water banked	Water put in storage for purpose of reserve	Quarterly	Water bank operators	Measurement to be reported: Total mismatch and reduction in demand Reporting: Report every five years minimum

Desired Outcome	Output Indicators (measures to effectively track output)	Outcome Indicator (measures to evaluate change that is a direct result of the work)	Measurement Tools and Methods				Measurement to be Reported and Overall Reporting Guidelines
			What needs to be measured:	How it should be measured:	Measurement/Reporting Frequency	Who should measure	
Provide adequate reserves (164,800 AF/4-year period) to supplement average condition supply to meet demands during multi-dry year conditions, starting 2009.							
Establish a mechanism to dedicate supply in groundwater for dry year use. Start banking water in average year conditions to meet the expected quantity by 2009 and beyond.	Amount of water in reserve each year.	Amount of water banked and withdrawn quarterly and a cumulative total in bank quarterly.	Amount of water banked	Water put in storage for purpose of reserve	Quarterly	Water bank operators	Measurement to be reported: Total mismatch and reduction in demand Reporting: Report every five years with update of the Plan and compare against objectives
Adapt to additional 7-10% reduction in imported deliveries by 2050, and additional 21-25% reduction in imported water deliveries by 2100.							
Increased local supply development.	Amount of local water supply development each year.	Amount of groundwater, local surface water and recycled water used each year.	Local water supply accessibility.	Use deliveries of groundwater, local surface water, and recycled water from annual reports. Estimation of local supplies made accessible by implemented projects.	Annually	AVSWCA in conjunction with water purveyors	Measurement to be reported: Total increase in local water supply delivery and development. Reporting: Report every five years with update of the Plan and compare against objectives.
Demonstrate ability to meet regional water demands without receiving SWP water for 6 months over the summer, by 2017.							
Provide a diversity of water supply sources to meet peak demands over the summer	Estimated SWP demand during 6-month summer period	Percent change in SWP water deliveries over the 6-month period	Amount of SWP received in a 6-month summer period (updated from estimate provided in Section 4.2)	Use deliveries from AVEK, LCID, and PWD during 6-month summer periods.	Annually	AVEK, LCID, PWD	Measurement to be reported: The difference between how much water is needed, compared to how much water is available during the 6-month summer period. Reporting: Report every five years with update of the Plan and compare against objectives
	Estimate of maximum savings from emergency conservation program	Percent change in groundwater extractions from using banked water	Total water supply available over 6-month summer period without above	Account for available emergency supply sources, such as banked water reserves, emergency transfer contracts, short-term paid non-use contracts, etc.	Annually	Water bank operators	
	Estimate of recycled water demand	Quantification of additional water transported to Region (i.e. banked water from outside region, transfers from south of Delta Water Supplies during emergency conditions from trade agreements)	Maximum reduction in demand that can be reasonable achieved	Using Contingency/Water Conservation Plans and Emergency Response Plan assuming highest level of water shortage	Annually	Local water purveyors	
	Estimate of banked water amount	Quantification of reduction in demand from emergency conservation measures	Overall storage capacity within existing or proposed recharge and extraction facilities.	Master Plans/Infrastructure Reports	Annually	Water bank operators, agencies implementing local groundwater recharge	Need to show have sufficient reserves (or potential to reduce demand) to meet the loss of SWP supply.

Desired Outcome	Output Indicators (measures to effectively track output)	Outcome Indicator (measures to evaluate change that is a direct result of the work)	Measurement Tools and Methods				Measurement to be Reported and Overall Reporting Guidelines
			What needs to be measured:	How it should be measured:	Measurement/Reporting Frequency	Who should measure	
Manage groundwater levels throughout the basin such that a 10-year moving average of change in observed groundwater levels is greater than or equal to 0, starting January 2010.							
Stabilize long-term groundwater levels in region, meaning groundwater recharge and extractions are in balance.	Observed groundwater levels in a monitoring network that provides representative view of entire groundwater basin Coordination with the Lahontan RWQCB for continued compliance with new or changes to existing discharge permits, regulations, etc.	Annual change in groundwater level (+ / -) from previous year averaged over past 10 years	Groundwater levels	Well monitoring (GAMA Program methodology will be followed, when applicable)	Quarterly	RWQCB	Measurement to be reported: Observed groundwater level improvements; calculate 10-year average Reporting: Report with update of the Plan and compare against objectives
Continue to meet Federal and State water quality standards as well as customer standards for taste and aesthetics throughout the planning period.							
Meet Federal and State water quality standards and achieve high levels of customer satisfaction	Monitoring to ensure compliance Coordination with Regional Boards for continued compliance with new or changes to existing discharge permits, regulations, etc.	Compliance with Consumer Confidence Reporting (CCR) and EPA's unregulated contaminant monitoring rule reporting	Standard lab methods for water quality testing, EPA Protocols, CCR Reporting Protocols	See EPA and CCR Protocols	See EPA and CCR Protocols	See EPA and CCR Protocols	Measurement to be reported: Comparison of measured water quality data to water quality standards. For taste & aesthetics, overall consumer satisfaction with water quality. Reporting: Taste & aesthetics collect annual data, report with updates, could also add to CCR Reporting.
		Customer Satisfaction	Taste & aesthetic	Solicit consumer input at a community fair	Monthly/Annually	Local water districts	
			Overall customer satisfaction	Include a bi-annual mail-in survey in the monthly water bill	Semi-annually	Local water districts	
Prevent unacceptable degradation of aquifer according to the Basin Plan throughout the planning period.							
Preserve acceptable quality of groundwater paying special attention to potential contaminants such as arsenic, nitrate, salinity and other problem pollutants	Monitoring of groundwater quality Coordination with Regional Boards for continued compliance with new or changes to existing discharge permits, regulations, etc. Monitor areas where impacting activities are located near recharge zones.	Difference between background or baseline groundwater quality and goals for arsenic, nitrate, salinity and other problem pollutants Promote non-impacting activities in recharge zones (not allow impacting activity in recharge zones)	Bacteria, Coliform, Radioactivity, Taste and Odor, Ammonia, Biostimulatory, Substances, Chemical Constituents, Chlorine, Total Residual Color, Dissolved Oxygen, Floating Materials, Oil and Grease, Non-degradation of Aquatic Communities, Pesticides, pH, as required by Basin Plan and additionally measure pollutants of concern such as arsenic, nitrate, TDS	Standard methods and procedures for water quality testing; GAMA Program methodology will be followed, when applicable. The Basin Plan requires that all drinking water requirements (MCL and Secondary MCL) are to be met	Monthly or more frequently, can refer to Title 22 for additional monitoring requirements Report quarterly	RWQCB	Measurement to be reported: water quality limits Reporting: Report with update of the Plan and compare against objectives

Desired Outcome	Output Indicators (measures to effectively track output)	Outcome Indicator (measures to evaluate change that is a direct result of the work)	What needs to be measured:	Measurement Tools and Methods How it should be measured:	Measurement/ Reporting Frequency	Who should measure	Measurement to be Reported and Overall Reporting Guidelines
Map contaminated and degraded sites and monitor contaminant movement, by 2017.							
Set up a process for identifying, mapping and monitoring contaminated sites. <i>Note: Groundwater quality monitoring is being completed as part of ongoing SNMP efforts.</i>	Locations, constituents, and constituent concentrations Coordination with Regional Boards for continued compliance with new or changes to existing discharge permits, regulations, etc. Records database search for pollutant leaks, spills, contamination, etc. Enhance monitoring system to detect identified potential pollutants (i.e. modify sampling plan to include identified potential pollutants or indicators of those pollutants, perform vertically discrete sampling, etc.).	Change in contaminant plume over time and rate of migration of contaminant	Water quality of Region to identify contaminated sites. Do a general sweep, then monitor more often in problem areas.	Database with location of the well, contaminants and detection levels, continually monitor that, monitoring of a few wells near it. Upstream and downstream well. May require additional monitoring wells.	Quarterly for common contaminants, if no contamination found for 5-10 years, then go to annually for that well.	Groundwater pumpers in conjunction with RWQCB	Measurement to be reported: Record of contaminated sites Reporting: Report every year with update of the Plan and compare against objectives
Identify contaminated portions of aquifer and prevent migration of contaminants, by 2017.							
Provide information for groundwater management that will prevent migration of existing contaminants to currently uncontaminated portions of the aquifer <i>Note: Groundwater quality monitoring is being completed as part of ongoing SNMP efforts.</i>	Locations, constituents, and constituent concentrations Potential sources of contaminants Potential drivers influencing migration (e.g., nearby cone of depression) Coordination with Regional Boards for continued compliance with new or changes to existing discharge permits, regulations, etc. Install monitoring wells (need several years of data to know if the contamination is due to seasonal variation or not)	Change in contaminant plume over time and rate of migration of contaminant Locate production wells geographically and with respect to depth in order to manipulate groundwater movement	Water quality of Region to identify contaminated sites. Do a general sweep, then monitor more often in problem areas. Migration of the contaminant	Database with location of the well, contaminants and detection levels, continually monitor, monitoring of nearby wells.	Quarterly	Groundwater pumpers in conjunction with RWQCB	Measurement to be reported: water quality data, contour level data, TBD Reporting: Report with update of the Plan and compare against objectives

Desired Outcome	Output Indicators (measures to effectively track output)	Outcome Indicator (measures to evaluate change that is a direct result of the work)	Measurement Tools and Methods				Who should measure	Measurement to be Reported and Overall Reporting Guidelines
			What needs to be measured:	How it should be measured:	Measurement/Reporting Frequency			
Prevent unacceptable degradation of natural streams and recharge areas according to the Basin Plan throughout the planning period.								
Preserve ecosystem health of current stream systems	Identification of potential contamination sources and mechanisms	Sources of flow that could carry contaminants	Bacteria, Coliform, Radioactivity, Taste and Odor, Ammonia, Biostimulatory, Substances, Chemical Constituents, Chlorine, Total Residual Color, Dissolved Oxygen, Floating Materials, Oil and Grease, Non-degradation of Aquatic Communities, Pesticides, pH, as required by Basin Plan and additionally measure pollutants of concern such as arsenic, nitrate, and TDS	Standard methods and procedures for water quality testing; GAMA Program methodology will be followed, when applicable.	Monthly or more frequently, can refer to Title 22 for additional monitoring requirements	RWQCB, purveyors	Measurement to be reported: water quality limits	
Preserve opportunity to use existing and promising future groundwater recharge areas	Identification of areas that need to be protected and monitored. Coordination with Regional Boards for continued compliance with new or changes to existing discharge permits, regulations, etc.	Contaminants in flows entering areas desired to protect		The Basin Plan requires that all drinking water requirements (MCL and Secondary MCL) are to be met.	Report quarterly		Reporting: Report with update of the Plan and compare against objectives	
<i>Note: Groundwater quality monitoring is being completed as part of ongoing SNMP efforts.</i>								
Increase infrastructure and establish policies to use 33% of recycled water to help meet expected demand by 2015, 66% by 2025, and 100% by 2035.								
Increased use of recycled water, which would decrease demand on other resources, such as imported water or groundwater.	New users for 7,700 AFY in 2015, 18,000 AFY in 2025, and 31,000 AFY of recycled water under contract by 2035. These numbers do not include recycled water used currently for environmental maintenance.	Volume of recycled water available: 23,000 AFY in 2015, 27,000 AFY in 2025, and 31,000 AFY in 2035 that will be used in the M&I, GWR, or agricultural setting where it is not currently used.	Amount of recycled water delivered and banked.	Deliveries would be measured using flow meters. Monitoring will be consistent with the permit requirements for the use sites.	Monthly/Quarterly	LACSD	Measurement to be reported: Total volume of recycled water banked or delivered compared to 33%, 66%, 100% Reporting: Report with update of the Plan and compare against objectives	
Coordinate a regional flood management plan and policy mechanism by the year 2017 and incorporate adaptive management strategies for climate change.								
Identification of data gaps, preparation of detailed flood use maps for the Antelope Valley Region, identification of policies to protect aquifer, natural streams and recharge areas from contamination in the Valley, and identification of flood management opportunities.	Identification of entities that would be involved in coordination of the regional flood management plan; the establishment of a regional flood management committee; and the identification of the funding mechanism for creating and implementing a plan.	Signing of an MOU (or other suitable governance structure) and commitment of funds for the regional flood management plan.	Monitoring progress of development of the Plan and policy mechanism	Monitoring of localized flooding incidents Monitoring of new flood control projects Development of an integrated flood management plan	Quarterly	Counties and Cities	Measurement to be reported: Measuring progress of a flood management plan development. Reporting: Report with update of the Plan and compare against objectives	

Desired Outcome	Output Indicators (measures to effectively track output)	Outcome Indicator (measures to evaluate change that is a direct result of the work)	What needs to be measured:	Measurement Tools and Methods How it should be measured:	Measurement/ Reporting Frequency	Who should measure	Measurement to be Reported and Overall Reporting Guidelines
Contribute to the preservation of an additional 2,000 acres of open space and natural habitat, to integrate and maximize surface water and groundwater management by 2017.							
Help contribute through identification of, awareness for, financial contribution towards, or similar for creating, restoring, or preserving near-term open space and natural habitat in the Antelope Valley.	Stakeholder-coordinated meetings with implementation partners to develop community projects. Increase in restoration plantings or mitigation planting sites.	Community consensus and agreement on project list/alternative, as developed through meetings and coordination Work with individual landowners to re-vegetate the areas Number of acres preserved & treated for open space and natural habitat; measurement of the health of open space and natural habitat	To measure 'preservation': existing acres of open space and natural habitat to measure additional open space and natural habitat acreage Fugitive dust management (measured and mapped); tons of soil per acre (particulate matter pm10, pm2.5) Acreage of new plantings	Land use maps; satellite imagery; AV conservancy database; General Plan GIS data Measure fugitive dust according to Air Quality Management District (AQMD) standards	Annually Soil data measured daily/reported annually	Counties, AVRCD	Measurement to be reported: Comparison between existing (2005) acreage of open space and natural habitat and measured open space and natural habitat. Reporting: Report with update of the Plan and compare against objectives
Preserve 100,000 acres of farmland in rotation through 2035.							
The agricultural community in the Antelope Valley stays economically healthy and land use remains in agriculture.	Landowners working with local water agencies in coordinated water banking rotation projects.	Number of water-resource integrated projects The number of acres of farmland in active rotation	Existing acreage in rotation and current land use by type (active farming, fallowing, recharge, etc.) Fugitive dust management (measured and mapped); tons of soil per acre (particulate matter pm10, pm2.5)	land use maps; satellite imagery; survey of landowners; General Plan GIS data, County commissioner reports Measure fugitive dust according to Air Quality Management District (AQMD) standards	Quarterly/ Annually Soil data measured daily/reported annually	Los Angeles County Farm Bureau, Kern County Farm Bureau	Measurement to be reported: Comparison between existing (2005) acreage of agricultural land in rotation and measured agricultural land in rotation. Reporting: Report with update of the Plan and compare against objectives
Contribute to local and regional General Planning documents to provide 5,000 acres of recreational space by 2035.							
Provide low impact recreational opportunities for residents and visitors into the future.	Stakeholder-coordinated meetings with implementation partners to develop community projects	Community consensus and agreement on project list/alternatives, as developed through meetings and coordination	Existing acreage of recreational space and future acreage	Land use maps; satellite imagery; General Plan GIS data	Quarterly/ Annually	Counties and cities	Measurement to be reported: Comparison between existing acreage of recreational land and measured recreational land. Reporting: Report with update of the Plan and compare against objectives
Coordinate a regional land use management plan by the year 2017 and incorporate adaptive management strategies for climate change							
Identify data gaps, prepare detailed land use maps for the Antelope Valley Region, identify policies to protect land uses in the Valley, identify land use management opportunities	Identification of entities that would be involved in coordination of the regional land management plan; the establishment of a regional land management committee; and the identification of the funding mechanism for the plan.	Signing of an MOU and commitment of funds for the regional land use management plan. A broadly supported regional land use management plan.	Monitoring progress of development of the plan and policy mechanism	Plan development	Quarterly	Counties and cities	Measurement to be reported: Measuring progress of land use management plan development. Reporting: Report with update of the Plan and compare against objectives

Desired Outcome	Output Indicators <i>(measures to effectively track output)</i>	Outcome Indicator <i>(measures to evaluate change that is a direct result of the work)</i>	<i>What needs to be measured:</i>	Measurement Tools and Methods <i>How it should be measured:</i>	<i>Measurement/Reporting Frequency</i>	<i>Who should measure</i>	Measurement to be Reported and Overall Reporting Guidelines
Implement “no regret” mitigation strategies, when possible, that decrease GHGs or are GHG neutral							
Decrease or neutralize GHG emissions from water resources management activities.	Records of GHG emissions from water and wastewater treatment and distribution. Records of imported water use versus local water supply use.	Reported decrease in estimated GHG emissions from water/wastewater distribution systems. Decrease in imported water usage.	Monitoring of GHG emissions from local activities and import of water.	Existing reporting through annual reports, UWMPs, and Air Resources Board reporting.	Annually	AVSWCA and purveyors	Measurement to be reported: Reduction in GHG emissions Reporting: Report with update of the Plan and compare against objectives

8.6.2 Project Specific Monitoring Plans

Project-specific monitoring plans will be developed for projects as they are implemented. They will be required to track each project’s progress in meeting the Region’s objectives and targets as well as in meeting the individual project’s expected benefits. Table 8-5 describes the types of information that may be monitored for the implementation projects described in Section 7.

Table 8-5: Implementation Project Potential Monitoring Activity

Sponsor	Project Name	Potential Monitoring Activity
City of Palmdale	Upper Amargosa Creek Flood Control, Recharge, and Habitat Restoration Project	<ul style="list-style-type: none"> • Volume of water recharged • Volume of imported water used before and after project implementation • Water quality in Amargosa Creek upstream and downstream of project • Acres of habitat and open space created • Acres of improved flood protection
Palmdale Water District	Littlerock Creek Groundwater Recharge and Recovery Project	<ul style="list-style-type: none"> • Volume of water recharged • Acre-feet of imported water used before and after project implementation, and associated energy use reduction • Water quality in Littlerock Creek upstream and downstream of project • Acres of habitat and open space created • Acres of improved flood protection
Palmdale Water District	Littlerock Dam Sediment Removal	<ul style="list-style-type: none"> • Volume of water recharged • Acre-feet of imported water used before and after project implementation, and associated energy use reduction • Water quality in Littlerock Creek upstream and downstream of project • Acres of habitat and open space created • Acres of improved flood protection
Antelope Valley Resource Conservation District	Antelope Valley Regional Conservation Project	<ul style="list-style-type: none"> • Volume of stormwater recharged • Acre-feet of imported water used before and after project implementation, and associated energy use reduction • Acres of recreation and open space created • Energy created through solar panel use • Number of trees planted
AVEK	Water Supply Stabilization Project – Westside Project (WSSP-2)	<ul style="list-style-type: none"> • Volume of water recharged • Acre-feet of imported water used before and after project implementation, and associated energy use reduction • Acres of open space created • Acres of improved flood protection
AVEK	Water Supply Stabilization Project (WSSP) – Westside Expansion	<ul style="list-style-type: none"> • Volume of water recharged • Acre-feet of imported water used before and after project implementation, and associated energy use reduction • Acres of open space created • Acres of improved flood protection

Sponsor	Project Name	Potential Monitoring Activity
AVEK	Eastside Banking & Blending Project	<ul style="list-style-type: none"> • Volume of water recharged • Acre-feet of imported water used before and after project implementation, and associated energy use reduction • THM levels in drinking water before and after project
AVEK	AVEK Strategic Plan	<ul style="list-style-type: none"> • Not applicable – planning document
Palmdale Recycled Water Authority	Palmdale Recycled Water Authority – Phase 2 Distribution System	<ul style="list-style-type: none"> • Acre-feet of imported water used before and after project implementation, and associated energy use reduction • Volume of new recycled water use
AVEK	South Antelope Valley Intertie Project	<ul style="list-style-type: none"> • Acre-feet of imported water used before and after project implementation, and associated energy use reduction • THM levels in drinking water before and after project
City of Lancaster	Antelope Valley Recycled Water Master Plan	<ul style="list-style-type: none"> • Not applicable – planning document
Boron CSD	BCSD Arsenic Management Feasibility Study and Well Design	<ul style="list-style-type: none"> • Arsenic concentrations in target well and drinking water • Acre-feet of imported water used before and after project implementation, and associated energy use reduction • Volume of new groundwater pumping available
City of Lancaster	Division Street and Avenue H-8 Recycled Water Tank	<ul style="list-style-type: none"> • Acre-feet of imported water used before and after project implementation, and associated energy use reduction • Volume of new recycled water use
City of Lancaster	Lancaster National Soccer Center Recycled Water Conversion	<ul style="list-style-type: none"> • Acre-feet of imported water used before and after project implementation, and associated energy use reduction • Volume of new recycled water use
City of Lancaster	Pierre Bain Park Recycled Water Conversion	<ul style="list-style-type: none"> • Acre-feet of imported water used before and after project implementation, and associated energy use reduction • Volume of new recycled water use
City of Lancaster	Whit Carter Park Recycled Water Conversion	<ul style="list-style-type: none"> • Acre-feet of imported water used before and after project implementation, and associated energy use reduction • Volume of new recycled water use
Rosamond CSD	RCSD Arsenic Consolidation Project	<ul style="list-style-type: none"> • Decrease in arsenic concentrations in drinking water • Reduction in drinking water conveyance system energy use
Antelope Valley Water Storage	Antelope Valley Water Bank	<ul style="list-style-type: none"> • Acre-feet of water stored
City of Palmdale	Palmdale Power Plant Project	<ul style="list-style-type: none"> • Acre-feet of imported water used before and after project implementation, and associated energy use reduction • Volume of new recycled water use

Projects proponents will be expected to monitor at the locations and frequency required by regulatory agencies and permitting. As described under Section 8.4.1, the AV IRWM Plan website, www.avwaterplan.org, provides a mechanism for stakeholders to upload project information regarding water supply, water quality, and other benefits, which will be collected in a database to manage, store, and disseminate information to the public. A data collection template will be available on the website in the future so that data collected during the AV IRWM Plan can be stored and managed in a consistent format.

8.7 Adaptive Management

The Antelope Valley Region will use an adaptive management process in its analysis of Plan and project performance and will utilize a methodology to update the Plan and modify projects. The Region will perform reviews of Plan performance at the frequency described in the above monitoring plan in addition to IRWM Plan updates that will occur every five years.

At the Plan level, the Region will review its progress in meeting the planning targets to determine whether they are being met. If the Region's planning targets are not being met, then a review of the original targets, verification of submitted project data, a request for additional data, and/or consideration of a broader mix of strategies and or projects may be warranted. The Region will perform a more in depth examination of its targets and objectives during its five-year Plan updates that will incorporate new studies and data relevant to the Region, and the Region will re-evaluate its issues and needs (i.e., the Region's prioritized vulnerabilities to climate change).

At the project level, project proponents will be responsible for tracking project performance and adjusting project operations for maximum benefit. Those projects that are funded through IRWM program grants will be expected to report on project performance to the Region.

If both project and plan level responses do not lead to satisfactory results, then a change in the Region's governance structure may be considered. This could involve identifying and inviting additional stakeholders whose participation would improve success. Changes to the stakeholder process could be explored to bring new ideas. Finally, a change in decision making process could be considered.