



Section 4 | Objectives

The following section presents the Region's IRWM Plan objectives and establishes planning targets for the Antelope Valley Region that can be used to gauge success in meeting these objectives. Objectives refer to the general intent for planning within the Antelope Valley Region, whereas the targets refer to specific measurable goals intended to meet the objectives. These Objectives and Planning Targets were originally established in 2007 and were revised during the 2013 IRWM Plan updates. This section describes how the objectives were developed, what information was considered, what groups were involved in the process, and how the final decision was made and accepted by the IRWM stakeholders.

4.1 Objectives Development

The primary focus of this IRWM Plan is to develop a broadly-supported water resources management plan that defines a meaningful course of action to meet the expected demands for water and related resources within the Antelope Valley Region between now and 2035. Goals to meet this primary focus were originally established in 2007 and were revised during the 2013 IRWM Plan updates. The goals constitute the most general statement of intent and include maintaining a plan that will address:

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



These general goals were developed by the Stakeholder Group to provide broad direction. Soon after, the Stakeholder Group developed objectives to help clarify how the issues and needs of concern for the Antelope Valley Region would be addressed. These objectives were designed to be more specific than the general goals mentioned above. The list of objectives was developed in 2007 and then revised again during discussions at stakeholder meetings in August and October of 2012. During these revisions, stakeholders indicated broad consensus on the changes to the objectives during the meetings, and this was recorded in the meeting notes that are published to the www.avwaterplan.org website. The IRWM objectives consider all Lahontan Basin Plan objectives, 20x2020 water efficiency goals, and the CWC 10540(c) requirements as well as the specific needs of the Antelope Valley as represented by regional and local planning documents.

During the August and October 2012 stakeholder meetings, a discussion about prioritization of objectives was conducted. It was decided that for the Antelope Valley Region, objectives would not be prioritized with the understanding that each objective is equally important relative to the others given that the IRWM Plan is intended to be a truly integrated plan that incorporates all areas of water resource management. In addition, stakeholders feel that a more equal level of importance placed on each of the objectives contributes to the success of the stakeholder group interactions. The Antelope Valley Region may choose, however, to prioritize these objectives relative to grant requirements to enhance project prioritization and selection in the future. In those cases, the type of funding program will dictate which objective should be emphasized.

After objectives were established, even more specific planning targets were developed to establish quantified benchmarks for implementation of the IRWM Plan. The planning targets include deadlines and describe quantitative measurements where applicable. The IRWM Plan addresses the Antelope Valley Region's water resource management needs, open space, recreation, habitat, and climate change related targets. The planning targets were originally established in 2007 and were revised by the Stakeholder group during the 2013 IRWM Plan updates at stakeholder meetings in August and October 2012. During these revisions, stakeholders indicated broad consensus on the changes to the planning targets during the meetings, and this was recorded in the meeting notes that are published to the www.avwaterplan.org website. In addition, objectives and targets related to climate change were developed by the Region's Climate Change Committee in a workshop held in November 2012. The new climate change related objectives and targets were presented and agreed

upon by stakeholders in the December 2012 stakeholder meeting as recorded in the meeting notes published to the www.avwaterplan.org website.

It is important to note that planning targets do not stipulate who is responsible for performing activities that will meet the numerical targets, nor do they specify exactly what projects will be implemented. The objectives and planning targets are presented below (and are summarized in Table 4-1).

Table 4-1: Antelope Valley Region Objectives and Planning Targets

Objectives	Planning Targets
<i>Water Supply Management</i>	
<p>Provide reliable water supply to meet the Antelope Valley Region’s expected demand between now and 2035; and adapt to climate change.</p>	<p>Maintain adequate supply and demand in average years.</p> <p>Provide adequate reserves (61,200 AFY) to supplement average condition supply to meet demands during single-dry year conditions, starting 2009.</p> <p>Provide adequate reserves (164,800 AF/ 4-year period) to supplement average condition supply to meet demands during multi-dry year conditions, starting 2009.</p> <p>Adapt to additional 7-10% reduction in imported deliveries by 2050, and additional 21-25% reduction in imported water deliveries by 2100.</p>
<p>Establish a contingency plan to meet water supply needs of the Antelope Valley Region during a plausible disruption of SWP deliveries.</p>	<p>Demonstrate ability to meet regional water demands over an average year without receiving SWP water for 6 months over the summer by 2017</p>
<p>Stabilize groundwater levels.</p>	<p>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.</p>
<i>Water Quality Management</i>	
<p>Provide drinking water that meets regulatory requirements and customer expectations.</p>	<p>Continue to meet Federal and State water quality standards as well as customer standards for taste and aesthetics throughout the planning period.</p>
<p>Protect and maintain aquifers.</p>	<p>Prevent unacceptable degradation of aquifer according to the Basin Plan throughout the planning period.</p> <p>Map contaminated sites and monitor contaminant movement, by 2017.</p> <p>Identify contaminated portions of aquifer and prevent migration of contaminants, by 2017.</p>
<p>Protect natural streams and recharge areas from contamination.</p>	<p>Prevent unacceptable degradation of natural streams and recharge areas according to the Basin Plan throughout the planning period.</p>

Objectives	Planning Targets
Maximize beneficial use of recycled water.	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.
<i>Flood Management</i>	
Reduce negative impacts of stormwater, urban runoff, and nuisance water.	Coordinate a regional flood management plan and policy mechanism by the year 2017 and incorporate adaptive management strategies for climate change.
Optimize the balance between protecting existing beneficial uses of stormwater and capturing stormwater for new uses.	
<i>Environmental Resource Management</i>	
Preserve open space and natural habitats that protect and enhance water resources and species in the Antelope Valley Region.	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.
<i>Land Use Planning/Management</i>	
Maintain agricultural land use within the Antelope Valley Region.	Preserve 100,000 acres of farmland in rotation ¹ through 2035.
Meet growing demand for recreational space.	Contribute to local and regional General Planning documents to provide 5,000 ² acres of recreational space by 2035.
Improve integrated land use planning to support water management.	Coordinate a regional land use management plan by the year 2017 and incorporate adaptive management strategies for climate change.
<i>Climate Change Mitigation</i>	
Mitigate against climate change	Implement “no regret” mitigation strategies, ³ when possible, that decrease GHG’s or are GHG neutral

4.2 Water Supply Management Objectives and Planning Targets

Water supply management objectives and planning targets are directly related to addressing the key issues and needs identified in the water supply assessment in Section 3, including water supply and groundwater management issues.

Water Supply Management Objectives and Planning Targets address the following CWC 10540(c) requirements:

- Protection and improvement of water supply reliability, including identification of feasible agricultural and urban water use efficiency strategies

¹ The phrase “in-rotation” means that not all 100,000 acres will be in agricultural production at one time; instead, the land will be rotated in cycles to make most efficient use of the land.

² The City of Palmdale and City of Lancaster’s General Plans provide a standard of 5 acres of parkland per 1,000 City residents. The Kern County General Plan provides a standard of 2.5 acres per 1,000 residents. The other local and regional General Plans do not provide a standard for “recreation or parkland” preservation. This planning target assumes a 2035 population of 547,000 residents in the Antelope Valley Region.

³ No regret projects are projects that would still be considered beneficial even if climate change weren’t happening.

- Identification of any significant threats to groundwater resources from overdrafting

Objective: Provide reliable water supply to meet the Antelope Valley Region's expected demand between now and 2035.

Reliability is defined herein as the likelihood that a certain amount of water will be delivered to a specific place at a specific time. Reliability depends on the availability of water from the source, availability and capacity of the means of conveyance, and the level and pattern of water demand at the place of delivery.

As discussed in Section 3, the Antelope Valley Region's expected demand between 2010 and 2035 is approximately 179,000 and 210,000 acre-feet per year (AFY), respectively, for an average water year. The planned water supply for an average water year is approximately 212,200 to 210,600 AFY, respectively. This indicates a potential surplus of between 600 and 33,000 AFY for the Region. There is, however, a mismatch of 61,200 AFY for a single dry water year and 164,800 AF/4-yr for a consecutive 4-year multi-dry year condition. In order to assure a reliable water supply, the following three planning targets have been identified. The targets are based on the assumption of a regional population estimates shown in Table 2-3. However, if actual growth is less than projected or if average annual water use per capita decreases due to conservation efforts, then the overall demand for the Antelope Valley Region would decrease as well. Any reduction in demand would reduce the mismatches. Similarly, this target assumes the supply from only currently planned sources presented in Section 3 and that groundwater extractions are limited to the total sustainable yield of 110,000 AFY. Limitations on imported water, local surface water, and/or recycled water could reduce the available supplies.

The first target has been revised to reflect changed conditions since 2007.

- Target: Maintain adequate supply and demand in average years.
- Target: Provide adequate reserves (61,200 AFY) to supplement average condition supply to meet demands during single-dry year conditions, starting 2009.
- Target: Provide adequate reserves (164,800 AF/4-year period) to supplement average condition supply to meet demands during multi-dry year conditions, starting 2009.
- Target: Adapt to additional 7-10% reduction in imported deliveries by 2050, and additional 21-25% reduction in imported water deliveries by 2100.⁴

These Planning Targets may be measured by using the supply and demand information in the various UWMPs developed for water suppliers in the Antelope Valley, along with the other information sources for demand and supply numbers described in Sections 2 and 3. These numbers will be updated each time the IRWM Plan is updated.

Objective: Establish a contingency plan to meet water supply needs of the Antelope Valley Region during a plausible disruption of SWP deliveries.

Given the Antelope Valley Region's dependence on SWP water, as discussed in Section 3, all elements of its reliability should be considered. Fluctuations in SWP deliveries due to climatic changes have already been incorporated in the supply and demand comparisons for average, single-dry, and multi-dry year conditions, as provided in Section 3. However, impacts to the Antelope Valley Region in the event of an outage or disruption of SWP water due to emergency situations (e.g., a flood, earthquake, power outage, or other disaster) also need to be considered and a

⁴Estimated imported water delivery reduction from California Climate Change Center, 2009. Using Future Climate Projections to Support Water Resources Decision Making in California. CEC-500-2009-052-F.

response planned. In the event of a temporary loss of SWP for 6 months over the summer, the Antelope Valley Region would be short approximately 65,000 AFY in an average water year. This estimate assumes that 33 percent (1/3) of demands occur during winter months (October through March) and 66 percent (2/3) occur in summer months (April through September); and it is based on the direct deliveries for AVEK discussed in Section 3.1.2.⁵ The Antelope Valley Region needs to address and identify necessary actions to accommodate for such a loss and to ensure imported water supply; therefore, the following target has been identified.

- **Target:** Demonstrate ability to meet regional water demands over an average year without receiving SWP water for 6 months over the summer by the June 2017.

This Planning Target may be measured by using UWMPs and other capacity related planning documents to show that sufficient pumping capacity exists in the Region to provide 65,000 AFY of water over a six-month time period during the summer. This represents a “worst case scenario” since under dry year and multi-dry year scenarios, smaller allotments of imported water would be available to begin with. So 66 percent reductions in these smaller amounts would have less impact.

Objective: Stabilize groundwater levels.

As previously mentioned, a decrease in groundwater levels has led to incidences of land subsidence within the Antelope Valley Region, which may result in the loss of groundwater storage as well as a possible degradation of groundwater quality. Accordingly, maintaining groundwater levels is a key component to managing the groundwater basin and ensuring its reliability by preventing future land subsidence.

It is recognized and acknowledged that the on-going adjudication of the Antelope Valley Ground Water Basin and the Physical Solution that may be adopted by the Court may require the target set forth below to be modified.

- **Target:** 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 in January 2010.

This Planning Target may be measured by using the collective data from 2001 to 2010 to establish a groundwater level baseline in the year 2010. Then, the same monitoring systems may be used to track the changes in groundwater level over time, as reported through the State Water Resources Control Board’s (SWRCB) Groundwater Ambient Monitoring and Assessment (GAMA) Program which collects groundwater quality data from a number of sources.

4.3 Water Quality Management Objectives and Targets

For this IRWMP, AB 3030 elements are used as a guideline for water quality objectives. Addressing the AB 3030 elements for improving and maintaining water quality would assist the Antelope Valley Region in achieving the water quality Objectives and Planning Targets discussed below: identification and management of wellhead protection areas and recharge areas; regulation of the migration of contaminated groundwater; construction and operation by local agencies of groundwater contamination cleanup, recharge, storage, conservation, water recycling, and extraction projects; development of relationships with State and Federal regulatory agencies; and

⁵ An average water year for the Region has approximately 95,500 AFY of direct deliveries from imported water providers. AVEK typically delivers 400 AF/day between June 15th and September 30th in any given year. During other times of year, AVEK typically delivers 150 AF/day. These values dictate that approximately 33% of annual demands occur in winter months (October to March) and 66% occur in summer months (April to September). Therefore, approximately 66% of average year direct deliveries (65,000 AFY) would not be available during a 6-month disruption over the summer.

review of land use plans and coordination with land use planning agencies to assess activities which create a reasonable risk of groundwater contamination.

Water Quality Management Objectives and Planning Targets were developed to address the following CWC 10540(c) requirements:

- Identification and consideration of the drinking water quality of communities within the area of the Plan
- Protection and improvement of water quality within the area of the Plan consistent with relevant basin plan
- Protection of groundwater resources from contamination

Objective: Provide drinking water that meets regulatory requirements and customer expectations.

As discussed in Section 3.2, water quality is generally good within the Antelope Valley except for the northeast region that borders the Lancaster subunit. Some shallow wells in north EAFB and Boron show poor groundwater quality which appears to be associated with areas containing hard-rock outcrops and areas underlain by the shallow playa deposits where evaporation has concentrated solutes. In general, the water quality over time has remained relatively unchanged across the entire Antelope Valley Region and generally meets MCLs. The exceptions to the good groundwater quality are some high concentrations of boron associated with naturally-occurring boron deposits, high nitrates associated with fertilizer use and poultry farming near the areas of Little Rock and Quartz Hill, and high arsenic levels due to recent changes (lowering) of the MCL by CDPH. Additionally, TDS and nitrate are two primary constituents that present concern in the southern portion of the valley, as well as arsenic which has recently become a concern.

However, in addition to meeting the Federal and State standards for water quality, other secondary standards (i.e., taste, color, and odor) may also affect a customer's overall satisfaction with the water. Although these constituents do not result in any health effects to the customer, they do impact the customer's desire to drink and use the water. Thus the following Planning Target has been identified.

- **Target:** Continue to meet Federal and State water quality standards as well as customer standards for taste and aesthetics throughout the planning period.

This Planning Target may be measured by using potable water quality data made available by the water purveyors in the Region through annual water quality reports, and using this information to track exceedances of drinking water quality standards.

Objective: Protect and maintain aquifers.

Groundwater is a main component of the Antelope Valley Region's water supply. Any loss of supply due to water quality degradation or contamination⁶ would significantly hinder the Antelope Valley Region's ability to meet anticipated demands. As the Antelope Valley Region begins to reduce its exclusive dependence on imported water, utilize more recycled water, and implement recharge and storage projects, protecting the aquifer will become increasingly more important. All of these non-groundwater sources can potentially cause degradation to the existing groundwater supply during recharge, possibly to the point of contamination. Identifying sources of degradation and taking appropriate measures to reduce or eliminate the potential for contamination is crucial to ensuring a reliable water supply. Where contamination has occurred, programs and projects must be

⁶ For the purposes of this IRWM Plan, any increase in constituent levels over naturally occurring levels is considered "degradation"; any increase in constituent levels over the State or Federal standards is considered "contamination".

implemented to prevent migration to other areas of the Basin. In some cases, treatment or remediation may be required to prevent migration. An area of the Basin that has been identified as contaminated is the portion of the aquifer near the Los Angeles World Airport where the spreading of wastewater effluent has resulted in a decline in water quality.⁷ Other sources of potential degradation are from wells no longer in service that have not been properly abandoned. These wells are suspected of drawing on water of a lesser quality from the deep aquifer to intermix with the water of the upper aquifer, degrading its quality. These areas and others should be identified, mapped, and monitored to prevent any future migration. The mapped information should include constituent concentrations in areas of concern, including TDS, nitrogen species (ammonia, nitrate, and nitrite), chloride, arsenic, chromium, fluoride, boron, and constituents of emerging concern (CECs; e.g., endocrine disruptors, personal care products or pharmaceuticals) consistent with the actions by the SWRCB taken pursuant to the Recycled Water Policy. Accordingly, the following Planning Target has been identified, which will involve monitoring these recharge sources to ensure they have negligible impacts to the groundwater supply.

- Target: Prevent unacceptable degradation of aquifer according to the Basin Plan throughout the planning period.
- Target: Map contaminated sites and monitor contaminant movement by 2017.
- Target: Identify contaminated portions of aquifer and prevent migration of contaminants by 2017.

These Planning Targets may be monitored by mapping data from SWRCB's GAMA program to track changes in groundwater quality over time. The SWRCB is responsible for administering and maintaining the GAMA data.

Objective: Protect and maintain natural streams and recharge areas.

In addition to protecting the aquifer, it is also important to protect the surface water areas of the Antelope Valley Region from degradation and contamination⁸. Natural streams feed the Littlerock Creek, Amargosa Creek, Anaverde Creek, Cottonwood Creek, and others as well as recharge areas in the Antelope Valley Region. Thus, any degradation in water quality in the streams could result in contamination of this surface water supply as well as degradation in the recharge areas. Thus the following Planning Target has been identified.

- Target: Prevent unacceptable degradation of natural streams and recharge areas according to the Basin Plan throughout the planning period.

This Planning Target may be monitored by agencies already monitoring local surface waters, including PWD (which monitors Littlerock Creek), and the Los Angeles County Watershed Management Division and Kern County which monitor general surface water quality of surface waters (general minerals).

Objective: Maximize beneficial use of recycled water.

As discussed in Section 3, approximately 31,000 AFY of recycled water will be available for use by 2035, assuming treatment plant upgrades and distribution system development occur as planned. This estimate does not include current environmental maintenance uses. However, only approximately 21,900 AFY are planned to be utilized by 2035 for M&I users and groundwater

⁷ As required by the November 2003 Cleanup and Abatement Order, and October 2004 Cease and Desist Order issued to LACSD by the Lahontan Region RWQCB.

⁸ For the purposes of this IRWM Plan, any increase in constituent levels over naturally occurring levels is considered "degradation"; any increase in constituent levels over the State or Federal standards is considered "contamination".

recharge, through the planned projects. Beneficial use of the remaining approximately 9,000 AFY would require additional infrastructure to treat and deliver the recycled water, as well as development of policies to encourage or require recycled water use for irrigation for existing beneficial uses or for groundwater recharge. The Los Angeles County and Antelope Valley Areawide General Plans currently identify general goals and policies to encourage groundwater recharge and reuse of recycled water. Moreover, the reuse of recycled water for municipal, industrial, and groundwater recharge end uses is critical for the long-term supply reliability of the Region. The development of this infrastructure and time to implement such policies is likely to occur in phases as resources are made available. Therefore, the following Planning Target has been identified.

- **Target:** 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.

This Planning Target may be measured by monitoring programs maintained by LACSD to record the amounts of recycled water delivered to customers. Documents such as annual reports for the Lancaster WRP and Palmdale WRP may be used to obtain the information.

4.4 Flood Management Objectives and Targets

Flood Management Objectives and Planning Targets address the following California Water Code (CWC) 10540(c) requirements:

- Protection, restoration, and improvement of stewardship of aquatic, riparian, and watershed resources within the region

Objective: Reduce negative impacts of stormwater, urban runoff, and nuisance water.

Objective: Optimize the balance between protecting existing beneficial uses of stormwater and capturing stormwater for new uses.

As described in Section 3.3, the Antelope Valley is prone to flash flooding, and this situation is aggravated by the lack of a coordinated and comprehensive drainage infrastructure system for managing stormwater and urban runoff. Stormwater tends to be of poor quality and high in sediment, and is further degraded by urban runoff. The Region recognizes that it may be vulnerable to potential increases in flooding due to projected changes in precipitation caused by climate change.

Extensive growth in the Antelope Valley has occurred in both major cities as well as unincorporated County areas. This growth both increases the amount of impervious surfaces in the Valley and the number of homes and businesses subject to the negative impacts of flooding and in need of flood protection. Flood waters are necessary to provide benefits in natural areas of the Region. One example of the importance of maintaining natural flood flow areas is Rosamond Dry Lake at the lowest elevation in the watershed. This lake requires significant flooding to maintain the biological crust that protects the lakebed surface from breaking down during high wind events. By protecting the lakebed surface, the air quality in the Antelope Valley is protected, and the operational mission of EAFB is protected by providing a suitable surface to test experimental aircraft and processes, which in turn provides jobs to Antelope Valley residents.

To adequately address the need for maintained flood effects, and to limit flood damage in a cost-effective manner, flood management efforts should take place on a regional scale and should be coordinated across jurisdictions. This scope and level coordination would also provide some consistency both in costs associated with flood prevention and mitigation, and in permitting requirements for Antelope Valley residents, businesses and developers. With the Antelope Valley Region having a great water supply need there is the added incentive for the flood management

systems to convey waters of suitable quality to recharge systems to augment groundwater supply for the benefit of multiple communities. Additionally, as discussed in Sections 2 and 3, changes in precipitation brought on by climate change are predicted to increase flash flooding in the Valley. To help respond to this, the Region can implement adaptive flood management that will allow for the continued multi-benefit use of flood water while maintaining flood protection.

Furthermore, urban development and revitalization efforts implemented on a regional scale that can protect natural and man-made amenities, while avoiding severe hazard areas such as flood prone areas, would be consistent with the goals and policies of the various land use authorities including incorporated cities and Kern and Los Angeles counties. New development is encouraged to protect drainage courses in as natural a state as possible, while minimizing modification of the natural carrying capacity or production of excessive siltation.

Flood Plain Management Areas are identified within the Antelope Valley Area Wide General Plan, and include areas that are subject to a high risk flooding during storm events such as Amargosa Creek, Anaverde Creek, Big Rock Creek, Little Rock Creek, the frontal canyons on the north slope of the San Gabriel Mountains, drainages from the north face of Portal Ridge, and the upper reaches of the Santa Clara River through Acton. Development is regulated within these areas by either not permitting the development (due to extreme hazard) or by requiring new development to conform to special performance requirements in the flood fringe areas adjacent to a waterway.

While optimizing the balance between protecting existing beneficial uses of stormwater and capturing stormwater for new uses, it is important to acknowledge that the natural habitats downstream (e.g., Piute Ponds) are very dependent on the natural flows. Although some natural habitats have been sustained through the years by recycled water, the dramatic stormflows are still a major component of the system. The magnitude of these stormflows provides needed clearing of vegetation, sediment, and water to wetland and wet meadow areas. A major alkali mariposa lily population exists in the Piute Pond Complex and requires surface water flow to maintain.

The local and regional General Plan policy documents pertaining to flood management within the Antelope Valley Region can be found in Table 8-1 in Section 8.

Accordingly, the following Planning Target has been identified:

- **Target:** Coordinate a regional flood management plan and policy mechanism by the year 2017 and incorporate adaptive management strategies for climate change.

This Planning Target may be measured by the incorporation of regional integrated flood management strategies, including adaptive management strategies for climate change, into the 2013 IRWMP Update. The Update may also include recommendations for a policy mechanism.

4.5 Environmental Resource Management Objectives and Targets

Environmental Resource Management Objectives and Planning Targets address the following CWC 10540(c) requirements:

- Protection, restoration, and improvement of stewardship of aquatic, riparian, and watershed resources within the region

Objective: Preserve open space and natural habitats that protect and enhance water resources and species in the Antelope Valley Region.

As described earlier, due to its proximity to the Los Angeles area, the Antelope Valley is subject to increasing demand for community development, recreation, and resource utilization. Population in the Antelope Valley is expected to increase by 121 percent between 2005 and year 2020. Some of this growth will result in the conversion of agricultural land, while some of this growth will occur in

areas that are currently natural and undeveloped. Loss of both agricultural acreage and natural areas decreases the amount of open space in the Valley. Open space can mean natural open space, passive and active recreation which may or may not be compatible with natural habitats, or natural open space preservation. As an example, open space can mean soccer fields, playgrounds, etc. that should not be considered natural habitat. This growth and the associated loss of open space could adversely affect local water resources through the loss of wetland areas and the watershed functions these areas provide (e.g., filtration of surface water, stormwater detention, habitat), and the loss of groundwater recharge areas.

Also of concern is the negative effect of urban growth on the unique biological resources of the Antelope Valley. As discussed in Section 3, besides a direct loss of habitat, increasing proximity to urban development is harmful to sensitive desert species, several of which are found only in the Antelope Valley Region. Examples of species that are impacted include the desert tortoise, Mojave ground squirrel, Arroyo toad, burrowing owl, alkali mariposa lily, and Joshua tree.

Thus, the following Planning Target has been identified to preserve open space and natural habitats that protect and enhance water resources and species in the Antelope Valley Region.

- **Target:** Contribute to the preservation of an additional 2,000 acres of open space and natural habitat, to integrate and maximize surface and groundwater management by 2017.

This Planning Target needs to be consistent with local planning objectives such as those identified in the Antelope Valley Area Wide General Plan, the Kern County General Plan, and other management plans approved for the Antelope Valley Region, some of which are discussed below. This target is not limited to 2,000 acres, and conservation of acreages greater than 2,000 acres is encouraged. For future consideration, it may be useful to set a Planning Target regarding the inventory, mapping, and protection of a minimum number of acres/linear area of remaining natural areas that are dependent on flooding and their connectivity to the headwaters.

This Planning Target will be measured using land acquisition information (including acreage of open space preserved and number of parcels acquired) obtained through the Los Angeles County Department of Regional Planning, the Kern County Planning and Community Development Agency, and the Antelope Valley Conservancy.

Policies within the Antelope Valley Area Wide General Plan implement Los Angeles County's General Plan, and further specify objectives and goals specific to that Antelope Valley Region. The Antelope Valley Area Wide General Plan identified several priority areas for habitat acquisition and preservation including the Santa Clara River, Fairmount/Antelope Buttes, steeper butte areas in the eastern Antelope Valley, and riparian areas within Littlerock Wash, Big Rock Wash, Portal Ridge-Liebre Mountain and Tehachapi Foothills and other SEAs.⁹ Educational, observational, and light recreational uses could be allowed in these preserves and the preserves would also act as open space areas, enhancing the rural character of the Antelope Valley.

Through the identification and designation of SEAs within the Los Angeles County General Plan and the Antelope Valley Area Wide General Plan, new urban growth or encroaching uses and activities would be controlled to ensure protection of ecological resources and habitat areas by regulating and establishing compatible land uses, and requiring design and performance criteria to be met. Although SEAs are neither preserves nor conservation areas, requiring development to be located

⁹ The SEA program is a component of the Los Angeles County General Plan Conservation/Open Space Element. SEAs are ecologically important land and water systems that support valuable habitat that plants and animals, often integral to the preservation of rare, threatened or endangered species and the conservation of biological diversity in Los Angeles County. Source: Los Angeles County Department of Regional Planning, <http://planning.lacounty.gov/sea>

around the existing biological resources (Los Angeles County 2006) would help to ensure protection of sensitive species and their habitats as well as helping to make the location and size of the preserved area scientifically defensible.

The Kern County General Plan does not identify specific open space or habitat areas to be preserved (Kern County 2008). The Kern County General Plan does, however, state that “The County will seek cooperative efforts with local, state, and federal agencies to protect listed threatened and endangered plant and wildlife species through the use of conservation plans and other methods promoting management and conservation of habitat lands.” Additionally, the open-space element of the Kern County General Plan contains measures for preserving open-space for natural resources.

The West Mojave Plan covers 9.4 million acres in the western portion of the Mojave Desert, including portions of Los Angeles and Kern counties. This habitat conservation plan and federal land use plan amendment presents a comprehensive strategy to conserve and protect the desert tortoise, the Mojave ground squirrel and over 100 other sensitive plants and animals and the natural communities of which they are a part. The West Mojave Plan accomplishes this by: designating 14 new Areas of Critical Environmental Concern (ACEC), adjusting four existing ACEC boundaries, and establishing other special management areas specifically designed to promote species conservation; designating allowed routes of travel on public lands to reduce species mortality from off-road vehicles; and, establishing other management prescriptions to guide grazing, mineral exploration and development, recreation, and other public land uses (BLM 2006). The West Mojave Plan is consistent with the existing conservation plans in the area, and would further the preservation of important species and their habitats that protect and enhance the Antelope Valley Region’s watershed.

Conservation and protection of the desert tortoise, the Mojave ground squirrel and over 100 other sensitive plants and animals and the natural communities of which they are a part, as described within the West Mojave Plan¹⁰, would help the area meet this Planning Target (BLM 2006). The Plan is consistent with conservation plans and local policies for furthering habitat protection by prescribing appropriate uses within protected ACEC areas that limit human and non-native animal interaction with sensitive species to reduce mortality and habitat degradation.

Preservation lands in other areas could also be targeted, based on qualities that maintain and enhance the watershed and aquifer.

4.6 Land Use Planning/Management Objectives and Targets

Land Use Planning/Management Objectives and Planning Targets address the following CWC 10540(c) requirements:

- Protection, restoration, and improvement of stewardship of aquatic, riparian, and watershed resources within the region

Objective: Maintain agricultural land use within the Antelope Valley Region.

As discussed in Section 3, there is an estimated 19,000 acres of irrigated crop land in the Antelope Valley Region. Agriculture is an important industry for the Antelope Valley area. In addition to direct production of food and fiber, secondary employment is created by the agricultural production, including transportation and food manufacturing. In Kern County it is estimated that

¹⁰ “While many of the general conservation concepts and species accounts are valid in the West Mohave Plan the Plan relies heavily upon habitat protection within BLM lands as mitigation for impacted habitats from development occurring elsewhere, perhaps many miles away..... the Department of Fish and Game did not endorse the WMP as a habitat protection planning document (personal communication, S. Harris, Department of Fish and Game.)”

one out of every four jobs is tied to the agricultural industry (Kern County Agricultural Commissioner 2007). In addition, agriculture plays an important role in community identity. The types of crops grown in an area may be unique to that place. Community festivals are often planned around the commodities unique to a place, or for which a community is known. The physical landscape of a place can be defined by its agriculture as the crops create a distinct color mosaic and pattern. Residents also can take advantage of the open space and views allowed by nearby agriculture. In addition, some agricultural crops may provide wildlife habitat (e.g., nesting, temporary foraging).

As described in earlier sections of this IRWM Plan, demand for urban development is resulting in a conversion of agricultural land, and is introducing conflicts between agricultural and residential development. As a result, agricultural land is increasingly found only on the urban fringes. There is a desire to preserve agriculture as an industry and as a cultural asset. Both Los Angeles County and Kern County have adopted policies intended to preserve agricultural resources. These policies include right-to-farm ordinances, reduced property tax programs for farm businesses, and policies discouraging provision of urban services in agricultural areas. The Los Angeles County General Plan and the Antelope Valley Area Wide Plan have designated “Agricultural Resource Areas,” which consist of areas that have been historically farmed in the County, as well as farmland identified by the California Department of Conservation, that are protected by policies to prevent the conversion of farmland to incompatible uses. This is intended to be accomplished through use of incentives that establish a voluntary agricultural preserve. To encourage the retention and expansion of agricultural use both within and outside a potential agricultural preserve, the policies promote compatible land use arrangements and offer technical assistance in support of farming interests. In addition, expansion of agriculture into underutilized lands, such as utility rights-of-way and flood prone areas is encouraged. The Kern County General Plan also has policies in place to protect areas designated for agricultural use from incompatible residential, commercial, and industrial subdivision and development activities. The following Planning Target, which furthers these existing goals and policies, has been identified to maintain agricultural land use within in the Antelope Valley Region.

- **Target:** Preserve 100,000 acres of farmland in rotation¹¹ through 2035.

This Planning Target will be measured using farmland area shown in general plan map updates as compared to previous general plan maps.

Objective: Meet growing demand for recreational space.

Demands for recreational space are similar to the demands for biological habitat and agricultural land. These demands for land uses are competing with one another due to an increasing population. Growth in the Antelope Valley threatens recreational lands and increases demands for recreational opportunities. However, population increases in Southern California as a whole also add to the pressure to maintain and expand the Antelope Valley Region’s recreational opportunities, particularly since recreational resources found in the Antelope Valley, such as off-highway vehicle (OHV) use areas, are not found anywhere else in near proximity to Southern California population centers. Optimally, recreational resources could be preserved in a way that does not conflict with other land uses or resource protection.

Currently, recreation resources in the Antelope Valley are provided by multiple jurisdictions. Often recreational facilities are dedicated as part of a specific local development project or fees are paid in-lieu of providing recreational facilities. However, most local jurisdictions have policies in place

¹¹ The phrase “in-rotation” means that not all 100,000 acres will be in agricultural production at one time rather the land will be rotated in cycles to make most efficient use of the land.

that would encourage cooperation to develop, expand, or enhance regional recreation facilities. For example, several goals and policies within Los Angeles County's General Plan identify the need for development of community parks and recreational amenities within areas deficient in such resources, and suggest such could be accomplished through preserving large natural and scenic areas while focusing new urban growth into areas with suitable land. To achieve such a balance between increased intensity of development and the capacity of needed facilities to serve the population, the General Plan encourages use of open space easements and dedications, or recycling of "brownfield" sites (e.g., abandoned mineral extraction sites, remediated industrial or commercial areas, etc.) as a means of achieving recreational, open space and scenic needs.

Development of new regulatory controls, similar to those in place for SEAs to ensure compatibility of development adjacent to or within major public open space and recreational areas, including the Angeles and Los Padres National Forests are also encouraged.

Thus the following Planning Target has been identified to meet the growing demand for recreational resources in the Antelope Valley Region. It is the intent of this IRWMP to support and promote the preservation of recreational space in parallel with general plan efforts.

- **Target:** Contribute to local and regional General Planning documents to provide 5,000 acres of recreational space by 2035.

This Planning Target will be measured using current recreational area as provided through general plan maps and by cities, and tracking the increased acreage of recreational space created through implementation of projects.

Objective: Improve integrated land use planning to support water management.

Coordination between land use planning agencies and water management agencies is crucial to implementation of a successful IRWM Plan. A regional land use management plan to guide the Antelope Valley Region's physical development would be a key step towards improving coordination and identifying future water needs throughout the Antelope Valley Region. Growth management, the protection of various land uses and the efficient use of natural resources such as land, water and energy are three of the principal goals of regional land use planning. A regional land use management plan that directs the Antelope Valley Region's growth towards existing centers will not only encourage natural resource efficiency and the preservation of surrounding agricultural land uses and recreational open space but will also improve the efficient use of economic resources dedicated towards utilities infrastructure improvements and expansions.

A regional land use management plan would identify the actions necessary in order to gauge success on meeting the land use management objectives. Ideally, a regional land use plan would serve as a master plan for the Antelope Valley Region's physical development. As such, it could provide the opportunity to conduct design studies to test the physical capacity of the Antelope Valley Region's urban areas and centers of development. Such a focus on physical design can help regional agencies to understand and visualize the impact of new structures on the natural and built environment, and thus to better understand the consequences of planning policy. Consideration of building codes, zoning laws, and other regulations affecting development should also be a central component of the regional land use plan. The plan should provide for the periodic review of its major elements, in order to remain a useful tool as the Antelope Valley Region undergoes various changes. Additionally, the potential need to adapt to climate change in the future should be considered through the inclusion of adaptive management strategies that will allow the Region to be flexible in the implementation of the land use management plan. Accordingly, the following Planning Target has been identified.

- **Target:** Coordinate a regional land use management plan by the year 2017 and incorporate adaptive management strategies for climate change.

This Planning Target may be measured by the incorporation of regional land use management strategies, including adaptive management strategies for climate change, into the 2013 IRWMP Update. The Update may also include recommendations for development of a land use management plan.

4.7 Climate Change Mitigation Objectives and Targets

Objective: Mitigate against climate change

In addition to adapting to the effects of climate change (which have been incorporated into the above objectives and targets), the Region recognizes the need to mitigate against future climate change by implementing resource management strategies (to be discussed in Section 5) that will increase energy efficiency, reduce greenhouse gas emissions, and/or sequester carbon. In order to acknowledge the challenges of interpreting new climate change information and identify which response methods and approaches will be most appropriate for their planning needs, the Region has decided to target the implementation of “no regret¹²” mitigation strategies which are strategies that will provide benefits under current climate conditions, while also mitigating against future climate change impacts. Therefore, the following Planning Target has been identified.

- **Target:** Implement “no regret” mitigation strategies, when possible, that decrease GHGs or are GHG neutral

This Planning Target will be measured by the incorporation of “no regret” mitigation strategies into the 2013 IRWMP Update, and through tracking of GHG emissions and energy usage by the Region’s agencies.

¹² No regret projects are projects that would still be considered beneficial even if climate change weren’t happening.